TOWN OF NEWBURGH
PLANNING BOARD
TECHNICAL REVIEW COMMENTS

PROJECT NAME:	**MOFFAT PROPERTIES, LLC**
PROJECT NO.:	**22-14**
PROJECT LOCATION:	**224 & 226 NY - 17K**
	SECTION 32, BLOCK 29, LOT 64 & 65
REVIEW DATE:	**15 JULY 2022**
MEETING DATE:	**21 JULY 2022**
PROJECT REPRESENTATIVE:	**INDEPENDENCE ENGINEERING**

1. The applicant's representative are requested to discuss the use of the project in the IB Zone and how that use fits into the schedule of uses D. The Code Enforcement Department should also evaluate the use with regard to compliance with the use in the IB Zone.

2. A note should be added to the plans requiring a Demolition Permit for any materials proposed to be removed from the site.

3. The proxy language on the title block should be removed.

4. A Stormwater Management Plan is under review by this office. This must be developed into a SWPPP in future submissions.

5. Comments from NYSDOT regarding the proposed two access points should be received.

6. Any stormwater Management Facility which contains permanent water must be fenced per the Town's code.

7. Orange County Planning referral will be required as project is located on State Highway.

8. The project is identified as having habitat for protected Bat Species and Upland Sandpiper. The project has submitted a narrative report regarding this. This report should be submitted to NYSDEC for review and concurrence.

9. The project is identified as containing 100 Year Floodplains. 100 Year Floodplain should be depicted on the site with references to the Floodplain mapping.

10. Parking lot striping must be in compliance with Town of Newburgh striping detail. *Copy Provided.*

11. The building will be required to be sprinklered per the Town of Newburgh code. Water line must be sized for sprinkler system as well as potable water. Sprinkler line potable water connections must be provided per Town of Newburgh requirements. Detail attached.

12. Plans should be reviewed by the Water Department regarding re-location of hydrant and re-use of existing water service tap which will be undersized based on sprinkler requirements.

13. Future plans should address site lighting and landscaping as required by Town code.

14. Size of existing sanitary sewer in front of the site should be identified. Detail for sewer connection should be identified. The existing sewer line must be evaluated as portions of this sewer line operate as a low pressure sewer line based on hydraulic grade line of the sewer in vicinity of the project.

15. Further detail of the gravel storage parking lot to the rear should be provided. Type of equipment to be stored on the site should be clearly identified. Stormwater Management from the proposed gravel area should be addressed on the plans.

16. A City of Newburgh Flow Acceptance letter will be required.

17. The Drainage Plan does not have the inverts out of the outlet control structure and headwall.

18. Any outdoor storage must comply with Section 185-30 of the Town Code.

19. Adjoiner's Notices must be filed with the properties within 500 feet prior to any return to the Planning Board.

20. The Tax Map is identified as Tax Map Section 65 on the application however it appears two Tax Maps are involved including Lot 64. Application should be updated as appropriate and a lot consolidation will be required prior to any approvals.

Respectfully submitted,

MHE Engineering, D.P.C.

Patrick J. Hines
Principal

PJH/kbw

TOWN OF NEWBURGH PLANNING BOARD

APPLICATION PACKAGE
for
SUBDIVISIONS,
SITE PLANS,
LOT LINE CHANGES
And
SPECIAL EXCEPTION USE PERMITS

Procedures and Requirements

July 2013

TOWN OF NEWBURGH PLANNING BOARD
308 GARDNERTOWN ROAD
NEWBURGH, NEW YORK 12550
(845) 564-7804
fax: (845) 564-7802
planningboard@hvc.rr.com

JULY 2013

TO WHOM IT MAY CONCERN:

This package of information and forms is provided at assist the applicant in the preparation of a submission of a site plan, subdivision, lot line change or special exception use permit to the Town of Newburgh Planning Board. In most cases the application will be prepared initially by a licensed professional engineer, architect, surveyor or land planner. Since in almost every case such professional will be required for the process, they should be retained as early as possible.

Procedurally, the applicant should contact the Planning Board to discuss the potential project and obtain the necessary forms and regulations.

The Zoning and Subdivision Regulations of the Town of Newburgh require that the applicant must present plans to the Secretary of the Planning Board. When your application is complete, it will be placed on the next **AVAILABLE** agenda. Submittals must be handed in to the Planning Board Secretary at least 10 days prior to the next meeting, but the date of the appearance at a meeting will be determined by the next available time slot, not necessarily the next meeting. You will be notified of the date, time and place of your meeting.

A minimum of **FOURTEEN (14)** sets of **FOLDED PLANS** for a major or minor subdivision or a site plan must be submitted with a **COMPLETED** application, and **FIFTEEN (15)** sets of plans must be submitted if plans need to be submitted to the Town of Newburgh Traffic Consultant. This completed application must include a **LONG FORM OR FULL EAF** for every project except lot line changes, 2 lot subdivisions under 3 acres or site plans impacting less than one acre, along with a **NARRATIVE** of the proposed project. The narrative should include the action being taken, the size of the parcel, what zone the parcel is in, the water and sewer information, any Zoning Board of Appeals relief needed, and whether the parcel is on a private or town road. Complex or unusual projects should be discussed in greater detail.

Following the first meeting before the Planning Board the applicant is required to send an Adjoiner Notice to property owners within 500 feet of the parcels in question (please see final page of the package for full instructions).

Upon initial review of a Short Form, the Planning Board may require specific additional environmental information or the preparation of a Long Form. Long Form part 1 should be completed by the applicant. The Board will review and may modify Part 2 prior to making a decision on the SEQRA aspect of the project.

All fees for consulting and professional services that the Planning Board incurs during the review of the applications will be the responsibility of the applicant. An advance deposit for these fees will be required and will be placed in an escrow account with the Town. If the escrow account falls below the 40% of the initial deposit, the applicant will be required to immediately make an additional deposit to the escrow account prior to any further review of the project application by the Planning Board.

Very truly yours,

JOHN P. EWASUTYN, Chairman
Town of Newburgh Planning Board

TOWN OF NEWBURGH
APPLICATION FOR
SUBDIVISION/SITE PLAN REVIEW

RETURN TO: Town of Newburgh Planning Board
308 Gardnertown Road
Newburgh, New York 12550

DATE RECEIVED: _____ **TOWN FILE NO:** 2022-14
(Application fee returnable with this application)

1. **Title of Subdivision/Site Plan (Project name):**
   Moffat Properties

2. **Owner of Lands to be reviewed:**
   Name Eugene A Mazzarelli Living Trust
   Address 739 Hewit Lane
   New Windsor, NY 12553
   Phone

3. **Applicant Information (If different than owner):**
   Name Moffat Properties, Inc.
   Address 701 Finger Lakes Drive
   Wake Forest, NC 27587
   Representative Craig T. Moffat
   Phone 919-669-7469
   Fax
   Email cmoffat@moffatproperties.com

4. **Subdivision/Site Plan prepared by:**
   Name Independence Engineering LLC
   Address 102 Farnsworth Ave, Suite 310
   Bordentown, NJ 08505
   Phone/Fax 267-664-2528

5. **Location of lands to be reviewed:**
   224 & 226 New York 17K, Town of Newburgh, Orange County NY

6. **Zone** IB **Fire District** Orange Lake
   Acreage 5.915 **School District** Central Valley

7. **Tax Map: Section** 32 **Block** 89 **Lot** 65

8. **Project Description and Purpose of Review:**
   Number of existing lots 2 **Number of proposed lots** 1
   Lot line change Consolidate 89-1-64 and 89-1-65
   Site plan review New warehouse, parking, gravel storage, storm water management.
   Clearing and grading demolish existing buildings and features.
   Other _____

PROVIDE A WRITTEN SINGLE PAGE DESCRIPTION OR NARRATIVE OF THE PROJECT

9. **Easements or other restrictions on property:**
   (Describe generally) N/A

10. **The undersigned hereby requests approval by the Planning Board of the above identified application and scheduling for an appearance on an agenda:**

Signature _____ **Title** MEMBER/MANAGER

Date: 6/17/2022

NOTE: **If property abuts and has its access to a County or State Highway or road, the following information must be placed on the subdivision map or site plan: entrance location, entrance profile, sizing of pipe (minimum length of pipe to be 24 feet).**

The applicant will also be required to submit an additional set of plans, narrative letter and EAF if referral to the Orange County Planning Department is required under General Municipal Law Section 239.

TOWN OF NEWBURGH PLANNING BOARD

Moffat Properties
PROJECT NAME

CHECKLIST FOR MAJOR/MINOR SUBDIVISION AND/OR SITE PLAN

I. The following items shall be submitted with a COMPLETED Planning Board Application Form.

1. x Environmental Assessment Form As Required

2. x Proxy Statement

3. x Application Fees

4. x Completed Checklist (Automatic rejection of application without checklist)

II. The following checklist items shall be incorporated on the Subdivision Plat or Site Plan prior to consideration of being placed on the Planning Board Agenda. Non-submittal of the checklist will result in application rejection.

1. x Name and address of applicant

2. x Name and address of owner (if different from applicant)

3. x Subdivision or Site Plan and Location

4. x Tax Map Data (Section-Block-Lot)

5. x Location map at a scale of 1" = 2,000 ft. or less on a tax map or USCGS map base only with property outlined

6. x Zoning table showing what is required in the particular zone and what applicant is proposing. A table is to be provided for each proposed lot

7. x Show zoning boundary if any portion of proposed site is within or adjacent to a different zone

8. x Date of plan preparation and/or plan revisions

9. x Scale the plan is drawn to (Max 1" = 100')

10. x North Arrow pointing generally up

11. x **Surveyor,s Certification**

12. x **Surveyor's seal and signature**

13. x **Name of adjoining owners**

14. x **Wetlands and 100 ft. buffer zone with an appropriate note regarding D.E.C. or A.C.O.E. requirements**

15. x **Flood plain boundaries**

16. x **Certified sewerage system design and placement by a Licensed Professional Engineer must be shown on plans in accordance with Local Law #1 1989**

17. x **Metes and bounds of all lots**

18. x **Name and width of adjacent streets; the road boundary is to be a minimum of 25 ft. from the physical center line of the street**

19. N/A **Show existing or proposed easements (note restrictions)**

20. x **Right-of-way width and Rights of Access and Utility Placement**

21. N/A **Road profile and typical section (minimum traveled surface, excluding shoulders, is to be 18 ft. wide)**

22. N/A **Lot area (in sq. ft. for each lot less than 2 acres)**

23. N/A **Number of lots including residual lot**

24. x **Show any existing waterways**

25. N/A **A note stating a road maintenance agreement is to be filed in the County Clerk's Office where applicable**

26. x **Applicable note pertaining to owners review and concurrence with plat together with owner's signature**

27. x **Show any improvements, i.e. drainage systems, water lines, sewer lines, etc.**

28. x **Show all existing houses, accessory structures, wells and septic systems on and within 200 ft. of the parcel to be subdivided**

29. x **Show topographical data with 2 or 5 ft. contours on initial submission**

30. N/A **Indicate any reference to a previous subdivision, i.e. filed map number, date and previous lot number**

31. N/A **If a private road, Town Board approval of name is required, and notes on the plan that no town services will be provided and a street sign (per town specs) is to be furnished and installed**

32. N/A **Number of acres to be cleared or timber harvested**

33. x **Estimated or known cubic yards of material to be excavated and removed from the site**

34. x **Estimated or known cubic yards of fill required**

35. x **The amount of grading expected or known to be required to bring the site to readiness**

36. N/A **Type and amount of site preparation which falls within the 100 ft. buffer strip of wetlands or within the Critical Environmental Area. Please explain in sq. ft. or cubic yards.**

_____

_____

37. N/A **Any amount of site preparation within a 100 year floodplain or any water course on the site. Please explain in sq. ft. or cubic yards.**

_____

_____

38. N/A **List of property owners within 500 feet of all parcels to be developed (see attached statement).** To be added after first meeting.

The plan for the proposed subdivision or site has been prepared in accordance with this checklist.

By: Neil C. Lansdon
Licensed Professional

Date: 6/17/2022

This list is designed to be a guide ONLY. The Town of Newburgh Planning Board may require additional notes or revisions prior to granting approval.

Prepared (insert date): 6/16/2022

STATEMENT TO APPLICANTS

RE: TOWN OF NEWBURGH CLEARING AND GRADING LAW

The Town of Newburgh Clearing and Grading Control Law requires a separate permit for most site preparation activities, including clearing, grading, tree cutting, excavating and filling. Site preparation activities performed following site plan or subdivision approval by the Planning Board may by exempt from the permit application, public hearing, fee and bonding requirements of the law provided the subdivision or site plan application has been reviewed for conformance with the clearing and grading law and the approval conditioned on compliance with the standards set forth in the law. Completion of the attached form will enable the Planning Board to review your application for conformance with the law's requirements. In the event it is not completed you many be required to apply for a separated permit for your site preparation activities. A sediment and erosion control plan and a plan showing the areas to be cleared, filled, graded or subjected to tree cutting, the types of vegetation affected and the proposed disposition of the destroyed vegetation must accompany the form. A SEQRA long form or full EAF should be utilized to discuss any environmental impacts and must accompany the application.

TOWN OF NEWBURGH

APPLICATION FOR CLEARING AND GRADING

Name of applicant: Moffat Properties, c/o Craig T. Moffat

Name of owner on premises: Eugene A Mazzarelli Living Trust

Address of owner: 739 Hewit Lane, New Windsor, NY 12553

Telephone number of owner:

Telephone number of applicant: 919-669-7469

State whether applicant is owner, lessee, agent, architect, engineer or contractor:

Equitable owner.

Location of land on which proposed work will be done:

224 & 226 New York 17K, Town of Newburgh, Orange County NY

Section: 32 **Block:** 89 **Lot:** 65 **Sub. Div.:** N/A

Zoning District of Property: IB **Size of Lot:** 5.915 ac

Area of lot to be cleared or graded: 4.00 acres

Proposed completion of date: spring 2023

Name of contractor/agent, if different than owner: Moffat Properties, Inc. c/o Craig T. Moffat

Address: 701 Finger Lakes Drive, Wake Forest, NC 27587

Telephone number: 919-669-7469

Date of Planning Board Approval: TBD **(if required)**

I hereby agree to hold the Town of Newburgh harmless from any claims arising from the proposed activity.

Signature of owner: **Date:** 6/17/2022

Signature of applicant (if different than owner):

TOWN ACTION:

Examined: **20**

Approved: **20**

Disapproved: **20**

FEE LAW SUMMARY

PENDING APPLICATIONS

All applicants with matters pending before the Planning Board as of the effective date of this local law shall be required to post as escrow in the manner and upon the terms and conditions set forth below:

(a) The Planning Board, in consultation with the applicant, shall compute the amount of the escrow to be posted with the Town. Such amount shall be reasonably related to the costs attendant to the Town's review of the application as of the effective date of this local law. Under no circumstances shall the escrow include amounts attributable to any costs incurred by the Town prior to the effective date of this local law.

(b) Once computed and established by Resolution of the Planning Board, the applicant shall, within fifteen (15) days of said resolution, post escrow fees with the Secretary of the Planning Board. Failure to deliver the said escrow fees may result in delay of the further processing of the application.

SEVERABILITY

In the event a court of law determined that any provision of this chapter is unenforceable, then only that provision shall be affected and all other provisions shall be fully enforceable.

EFFECTIVE DATE:

This local law shall take effect immediately upon filing in the Office of the Secretary of State.

FEE ACKNOWLEDGEMENT

The town of Newburgh Municipal Code sets forth the schedule of fees for applications to the Planning Board. The signing of this application indicates your acknowledgement of responsibility for payment of these fees to the Planning Board for review of this application, including, but not limited to escrow fees for professional services (planner/consultant, engineering, legal), public hearing and site inspection. Applicant's submissions and resubmissions are not complete and will not be considered by the planning board or placed upon its agenda unless all outstanding fees have been paid. Fees incurred after the stamping of plans will remain the responsibility of the applicant prior to approval of a building permit or certificate of occupancy. Fee schedules are available from the Planning Board Secretary and are on the Town's website.

Craig T. Moffat

APPLICANT'S NAME (printed)

APPLICANTS SIGNATURE

6/17/2022

DATE

Note: if the property abuts and has access to a County or State Highway or road, the following information must be place on the subdivision map: entrance location, entrance profile, sizing of drainage pipe (minimum length of pipe to be twenty-four (24) feet).

PROXY

(OWNER) _____, DEPOSES AND SAYS THAT HE/SHE

RESIDES AT _____

IN THE COUNTY OF _____

AND STATE OF _____

AND THAT HE/SHE IS THE OWNER IN FEE OF _____

_____

WHICH IS THE PREMISES DESCRIBED IN THE FOREGOING APPLICATION AS DESCRIBED THEREIN TO THE TOWN OF NEWBURGH PLANNING BOARD AND _____ IS AUTHORIZED TO REPRESENT THEM AT MEETINGS OF SAID BOARD.

DATED: _____ _____

OWNERS SIGNATURE

_____ _____

OWNERS NAME (printed)

_____

_____ _____

WITNESS' SIGNATURE

NAMES OF ADDITIONAL REPRESENTATIVES

_____

WITNESS' NAME (printed)

PLANNING BOARD DISCLAIMER STATEMENT
TO APPLICANTS

The applicant is advised that the Town of Newburgh Municipal Code, which contains the Town's Zoning Law, is subject to amendment. Submission of an application to this Board does not grant the applicant any right to continued review under the Code's current standards and requirements. It is possible that the applicant will be required to meet changed standards or new Code requirements made while the application is pending.

An approval by this Board does not constitute permission, nor grant any right to connect to or use municipal services such as sewer, water or roads. It is the applicant's responsibility to apply for and obtain the Town of Newburgh and other agency approvals not within this Board's authority to grant.

The applicant hereby acknowledges, consents, and agrees to the above.

6/17/2022
DATED

Craig T. Moffat
APPLICANT'S NAME (printed)

APPLICANT'S SIGNATURE

DISCLOSURE ADDENDUM STATEMENT TO APPLICATION, PETITION AND REQUEST

Mindful of the provisions of Section 809 of the General Municipal Law of the State of New York, and of the Penal provisions thereof as well, the undersigned applicant states that no State Officer, Officer or Employee of the Town of Newburgh, or Orange County, has any interest, financial or otherwise, in this application or with, or in the applicant as defined in said Statute, except the following person or persons who is or are represented to have only the following type of interest, in the nature and to the extent hereinafter indicated:

__X__ **NONE**

_____ **NAME, ADDRESS, RELATIONSHIP OR INTEREST**
(financial or otherwise)

This disclosure addendum statement is annexed to and made a part of the petition, application and request made by the undersigned applicant to the following Board or Officer of the Town of Newburgh.

_____ **TOWN BOARD**
__X__ **PLANNING BOARD**
_____ **ZONING BOARD OF APPEALS**
_____ **ZONING ENFORCEMENT OFFICER**
_____ **BUILDING INSPECTOR**
_____ **OTHER**

6/17/2022
DATED

INDIVIDUAL APPLICANT

Moffat Properties Inc.
CORPORATE OR PARTNERSHIP APPLICANT

BY: _____
(Pres.) (Partner) (Vice-Pres.)
(Sec.) (Treas.)

AGRICULTURAL NOTE N/A

(Required to be placed on all plans where property lies within 500 feet of land in active agricultural production or operation)

Property adjacent to lots (1) is in active agricultural operation and production and residents must be aware that such property is protected by New York State "Right to Farm Laws" as regulated by the Department of Agriculture and Markets. From time to time during and prior to the normal growing season land and crops may be sprayed from the ground or by air, manure may be applied, and periodic noise may occur from machinery operation at various times throughout the day. Residents should be aware of this action by the adjacent property owners.

(1) Specific lots adjacent to the active farming area which are impacted shall be inserted in this space.

AGRICULTURAL DATA STATEMENT N/A

(Required pursuant to Agricultural and Markets Law §305-a for applications for site plan approvals, use variances and subdivision approvals that will occur on property within a County Agricultural District containing an active farm operation or on property with boundaries within five hundred feet of an active farm operation located in a County Agricultural District)

Name and address of the applicant: _____

_____

Description of the proposed project: _____

_____

Location of the proposed project: _____

_____

Name(s) and address(es) of any owner(s) of land within a County Agricultural District containing active farming operations and located within five hundred feet of the boundary of the project property: _____

_____

_____

_____

A tax map or other map showing the site of the proposed project relative to the location of the identified farm operations must be attached to this form.

_____

APPLICANT'S SIGNATURE

_____

DATE

ARCHITECTURAL REVIEW N/A

The Town of Newburgh Planning Board had been authorized to act as the Architectural Review Board for all: site plans, projects involving ten or more dwelling units, and any construction that would affect the character of a neighborhood under Section §185-59 of the Town Code (Zoning Law).

In order to perform this task, at some point prior to final approval, the applicant shall provide the Planning Board with elevations of buildings for all sides and a written (separately or on drawings) description of the materials, colors and textures to be used in construction. Plans shall also include topographical information and any screening of portions of the buildings, either existing or proposed.

Samples of the material and colors to be used shall either be submitted to the Planning Board or brought to the meeting at which architectural review will be discussed.

ARCHITECTURAL REVIEW FORM N/A

TOWN OF NEWBURGH PLANNING BOARD

DATE: _____

NAME OF PROJECT: _____

The applicant is to submit in writing the following items prior to signing of the site plans.

EXTERIOR FINISH (skin of the building):

Type (steel, wood, block, split block, etc.)

_____

COLOR OF THE EXTERIOR OF BUILDING:

_____

ACCENT TRIM:

Location: _____

Color: _____

Type (material): _____

PARAPET (all roof top mechanicals are to be screened on all four sides):

_____

ROOF:

Type (gabled, flat, etc.): _____

Material (shingles, metal, tar & sand, etc.): _____

Color: _____

WINDOWS/SHUTTERS:

Color (also trim if different): _____

Type: _____

DOORS:

Color: _____

Type (if different than standard door entrée): _____

SIGN:

Color: _____

Material: _____

Square footage of signage of site: _____

_____

Please print name and title (owner, agent, builder, superintendent of job, etc.)

_____

Signature

LIST OF ADJACENT PROPERTY OWNERS

N/A at this time

Within ten business days following the applicant's first appearance before the Planning Board, the applicant shall forward a letter prepared by the Planning Board or an authorized agent of the Planning Board to all property owners within 500 feet of the land involved in the application, as the names of such owners appear on the last completed assessment roll of the Town, notifying the property owners of the receipt of the plat and application, by first class mail. **The list of property owners shall be provided to the applicant from the Planning Board, through the Town Assessor's office.** The applicant shall thereafter submit a duly executed, notarized affidavit of mailing to the Planning Board. Further appearances before the Planning Board shall be prohibited until an affidavit meeting the requirements has been delivered. In the event a modification to an application proposes an increase in the number of lots or the relocation of a proposed road or drainage basin to a location adjacent to an adjoining property, then a supplementary letter shall be required to be forwarded in the same manner advising of the modification.

Independence ENGINEERING LLC
102 FARNSWORTH AVENUE, SUITE 310
BORDENTOWN, NJ 08505
(609) 496-9369

June 17, 2022

Mr. John Ewasutyn, Planning Board Chairman
21 Hudson Valley Professional Plaza
Newburgh, NY 12550

Re: Planning Commission Application
Moffat Properties
226 NY-17K
Town of Newburgh, NY 12550
Application #2022-14
IE Job #028-004

Dear Mr. Ewasutyn,

Moffat Properties (Applicant) proposes to construct a Sunbelt Rentals facility at 226 New York Route 17K (tax parcels 89-1-64 and 89-1-65), Town of Newburgh, Orange County, New York.

The project site is currently composed of an abandoned landscaping operation occupied by a one-story dwelling, a one-story retail store, five wooden sheds and numerous hardscapes including paved areas, block walls and ornamental paving stones.

As part of this project, these structures and hardscaped areas will be removed. The proposed project will involve the construction of a new industrial equipment yard including parking, utilities, and storm water management facilities.

The proposed project is located within the Interchange Business (IB) Zoning District, in which "warehouse, storage, and transportation facilities" is a permitted use according to the Town of Newburgh Zoning Regulations (Chapter 185).

Per the Town of Newburgh Planning Board Fee schedule, the following fees are required and are included with the submission:

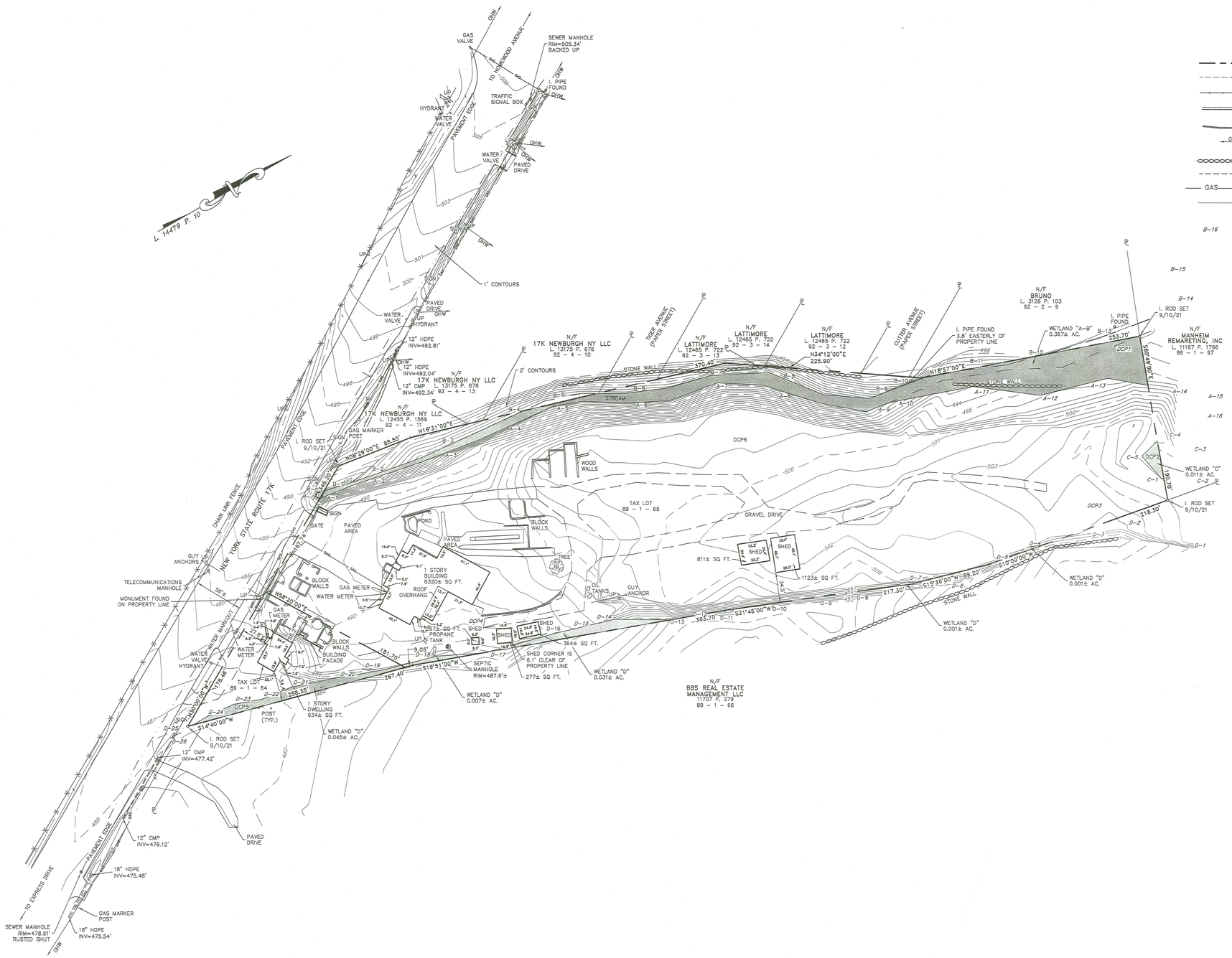
- Commercial Site Plan Application Fee. $1,500 plus $250 per 1,000 sf of floor area. Floor area proposed is 11,800 sf. Total fee $1,500 plus $250 x 12 = $4,500.
- Escrow fee Commercial Site Plan. $1,000 plus $200 per 1,000 sf of floor area. Floor area proposed is 11,800 sf. Total fee $1,000 plus $200 x 12 = $3,400.
- Public hearings. $150 plus publication and transcription costs
- Long Environmental Assessment Form $2,000.

If you need anything else, or have any questions, please don't hesitate to call me at (267) 664-2528 or via email jjochems@independence.engineering .

Sincerely,

Independence Engineering

Jan W. Jochems, Sr. Project Manager



LEGEND:

- PROPERTY LINE
- EASEMENT
- FENCE
- CURB/ PAVEMENT EDGE
- WALL
- OHW — UTILITY POLE/GUY ANCH.
- STONE WALL
- DRAINAGE
- GAS — GAS LINE
- WATER LINE
- HYDRANT
- WATER VALVE
- SEWER MANHOLE
- FLAT GRATE INLETS
- SIGN
- DOUBLE POSTED SIGN
- TELECOMMUNICATION MANHOLE
- GAS VALVE
- CURB STOP

NOTES:

1. SUBSURFACE STRUCTURES AND UTILITIES NOT VISIBLE AT THE TIME OF SURVEY HAVE NOT BEEN SHOWN.
2. REFERENCES:

   MAP ENTITLED "FRANKLIN PARK ADDITION, EAST COLDENHAM, NEW YORK," FILED IN THE ORANGE COUNTY CLERK'S OFFICE ON OCTOBER 6, 1926, AS FILED MAP NO. 919.

   TITLE REPORT NUMBER PAL27920, HAVING AN EFFECTIVE DATE OF FEBRUARY 4, 2022, PREPARED BY PREMIER ABSTRACT, LTD.
3. CONTOURS SHOWN ARE THE RESULT OF AN ACTUAL FIELD SURVEY PERFORMED BY LANC & TULLY ENGINEERING AND SURVEYING, P.C. ELEVATIONS SHOWN ARE BASED ON AN ASSUMED DATUM.
4. WETLANDS SHOWN HERON AS FLAGGED BY NAUTILUS ENVIRONMENTAL GROUP, LLC AND FIELD LOCATED BY LANC AND TULLY ENGINEERING AND SURVEYING P.C. ON APRIL 27, 2022.
5. SITE ADDRESS:
   TAX LOT 89 – 1 – 64: 224 ROUTE 17K, NEWBURGH, NY
   TAX LOT 89 – 1 – 65: 226 ROUTE 17K, NEWBURGH, NY
6. PROPERTY IS LOCATED WITHIN AN AREA HAVING A ZONE DESIGNATION OF X AND A ON FLOOD INSURANCE RATE MAP NO. 36071C0138E, WITH A DATE OF IDENTIFICATION OF AUGUST 3, 2009, FOR COMMUNITY NUMBER 360627 IN ORANGE COUNTY, STATE OF NEW YORK, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH PROPERTY IS LOCATED.
7. NO PARKING STRIPES FOUND AT TIME OF SURVEY.

RECORD OWNER:

EUGENE A. MAZZARELLI LIVING TRUST
739 HEWITT LANE
NEW WINDSOR, NY 12553

89 – 1 – 64
89 – 1 – 65
L. 14479 P. 10

AREAS:

TAX LOT 89 – 1 – 64 0.372± AC.
TAX LOT 89 – 1 – 65 5.543± AC.

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

COPIES FROM THE ORIGINAL OF THIS DOCUMENT NOT MARKED WITH AN ORIGINAL OF THE PROFESSIONAL ENGINEER'S AND/OR LAND SURVEYOR'S STAMP OR EMBOSSED SEAL SHALL NOT BE CONSIDERED VALID, TRUE COPIES.

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209–2 OF THE NEW YORK STATE EDUCATION LAW.

Dig Safely. New York. Call 811 before you dig

CERTIFICATION:

MOFFAT PROPERTIES, PREMIER ABSTRACT, LTD, FIRST AMERICAN TITLE INSURANCE COMPANY:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS AND INCLUDES ITEMS 1, 2(a), 2(b), 2(c), 3, 4, 7(a), 7(b)(1), 8, 9, 13, 19 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON APRIL 27, 2022.

DATE: MAY 16, 2022

(SIGNED) Robert C. Tully L.S. (SEAL)

L&T LANC & TULLY
ENGINEERING AND SURVEYING, P.C.

P.O. Box 687, Rt. 207
Goshen, N.Y. 10924
(845) 294–3700

ALTA/NSPS SURVEY PREPARED FOR

MOFFAT PROPERTIES

TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

Date:	MAY 16, 2022
Revisions:	
CAD File:	220041–SVY.DWG
Layout:	SVY
Sheet No.:	1 OF 1
Drawn By:	EK
Checked By:	
Scale:	1" = 50'
Tax Map No.:	AS NOTED
Drawing No.:	C3D A– 22 – 0041 – 01

STORMWATER MANAGEMENT REPORT

FOR

Moffat Properties – NY Route 17-K

224-226 Route 17-K
Town of Newburgh
Orange County, New York
Tax Lot 89-1-64 & 89-1-65

Prepared by:

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Neil E. Sander, PE
NY Professional Engineer License 87961

June 2022

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Appendices

I

Site Information

Location and Surrounding Uses

The Moffat Properties – NY Route 17-K site in the Town of Newburgh, Orange County, New York consists of a total of 5.915 acres located in the IB Interchange Business District. The properties are located at 224 and 226 NY Route 17-K, Town of Newburg, Orange County, New York 12550. The tracts are also known as Tax Lots 89-1-64 and 89-1-65.

Existing Conditions

The project site is currently composed of an abandoned landscaping operation occupied by a one-story dwelling, a one-story retail store, five wooden sheds and numerous hardscapes including paved areas, block walls and ornamental paving stones. The project site is bounded to the south by Route 17K across which is Stewart Airport, to the west by forested land and a commercial property, to the north by forested land, and to the east by residential lots and another commercial establishment. There is one (1) existing right-in-right-out driveway that leads to the paved parking area. There is a circular gravel driveway toward the one-story dwelling.
An existing water connection along route 17-K exists and is to remain. The current one-story dwelling and one-story retail store are connected to an on-site septic pit, located along the southeast boundary of the project site. There is currently no stormwater management on the site. The site is served by natural gas via a connection to the main gas line along route 17-K.
A stream traverses the western property and is located within a floodplain that also contains wetlands. Per a site wide wetland delineation, additional wetlands were located in proximity to the western boundary and wells at the eastern boundary. The property is relatively evenly sloped in the front and rear center of the property, with steeper slopes toward the eastern and western property lines. Existing elevations range from 508 to 478 above MSL.

Proposed Conditions

The applicant proposes to demolish the existing structures and residual landscape business items and construct an approximately 11,790 s.f. warehouse building with a wash bay and office area, a parking area along the front and south sides of the building, a paved driveway along the north and north sides of the building, and a gravel area to be used for storage. The 2 existing driveway entrances will be replaced by 2 new driveways to access the property. Both driveways will be full movement driveways.
A stormwater management facility will be constructed on the property along the front of the building, in the southern section of the property, along Route 17-K.

Soil Types

The soils information for the project is found on the NRCS's website in the "Web Soil Survey, http://websoilsurvey.nrcs.usda.gov". The Soil Survey Area is Orange County, New York and the Survey Area Data is Version 22, August 29, 2021. The following soil types are found on the site:

Soil Type	Symbol	Soil Group
Udifluvents – Fluvaquents Complex (95%), Frequently Flooded	UF	A
Erie Extremely Stony Soils (5%), Gently Sloping	ESB	D

II

Hydrology

Stormwater Management Design Criteria

The Stormwater Management Plan described herein has been designed according to the following publications and criteria:

- Chapter 157. Stormwater Management, Town of Newburgh NY.
- New York State Stormwater Management Design Manual, April 2008 or most current version.
- New York Standards and Specifications for Erosion and Sediment Control, August 2005 or most current version.
- "Urban Hydrology for Small Watersheds" (Technical Release No. 55), published by the United States Department of Agriculture, Soil Conservation Service, dated June 1986.

Peak Runoff Rate and Quantity Control

Per the requirements of paragraph 157-6, the required reductions have been provided for the project. The post developed flow rates and volumes have been reduced to be less than pre-developed for the site. The rainfall intensities used for the storm events are taken from the design manual and are 2.9, 5.5, 6.5, and 8.0 inches for the 1, 10, 25, and 100-year storm events, respectively.

Rate Control

Overall Site				
Event	**Pre-Dev (cfs)**	**Post Developed (cfs)**	**Reduction (cfs)**	**Reduction (%)**
1-year	0.775	0.746	**-0.029**	**3.7%**
10-year	6.297	5.077	**-1.220**	**19.4 %**
25-year	10.220	9.466	**-0.754**	**7.4 %**
100-year	16.930	15.210	**-1.720**	**10.2 %**

The above results were generated using Hydrology Studio Software V 3.0.0.21. The results can be found in the appendices in the back of this report.

III

Storm Sewer System

Design Criteria

All closed conveyances were designed in accordance with section 203-265 D. of Article XXV Stormwater Management for Areas within the Pinelands.

The storm system has been designed for the 25-year storm event. The system has been run to show capacity for the 100-year storm event to ensure all runoff designed to go to the basin will reach the basin. All pipes are designed using R.C.P. with a minimum pipe size of 15". The drainage areas to each inlet within the proposed roads has been assumed to be fully impervious.

Methodology

Peak flow rates to each collection point were calculated using the Rational Method, which calculates peak flow as the product of the area draining to the collection point, the rainfall intensity of the design storm, and a composite factor reflecting upstream cover conditions:

$Q = C * I * A$

where:
Q = runoff
C = cover number
I = rainfall intensity
A = drainage area

Closed conveyance systems were then designed for capacity using Manning's Equation.

Most complex pipe systems are currently designed using computer software to handle the recursive aspect of Manning's Equation. Delaware National was designed using Hydraflow Storm Sewers Extension for AutoCAD® Civil 3D® Version 2022; inlet and pipe tables are included in the appendix.

Hydraulic Gradeline Analysis

Hydraulic gradeline calculations were performed for the entire conveyance system, to assure that the HGL fell below the grate/rim elevation for each structure in the system during the 25-year storm event (design storm) and the 100-year storm event. Hydraulic calculations were performed using Hydraflow Storm Sewers Extension for AutoCAD® Civil 3D® Version 2022; HGL tables are included in the appendix.

Summary Report

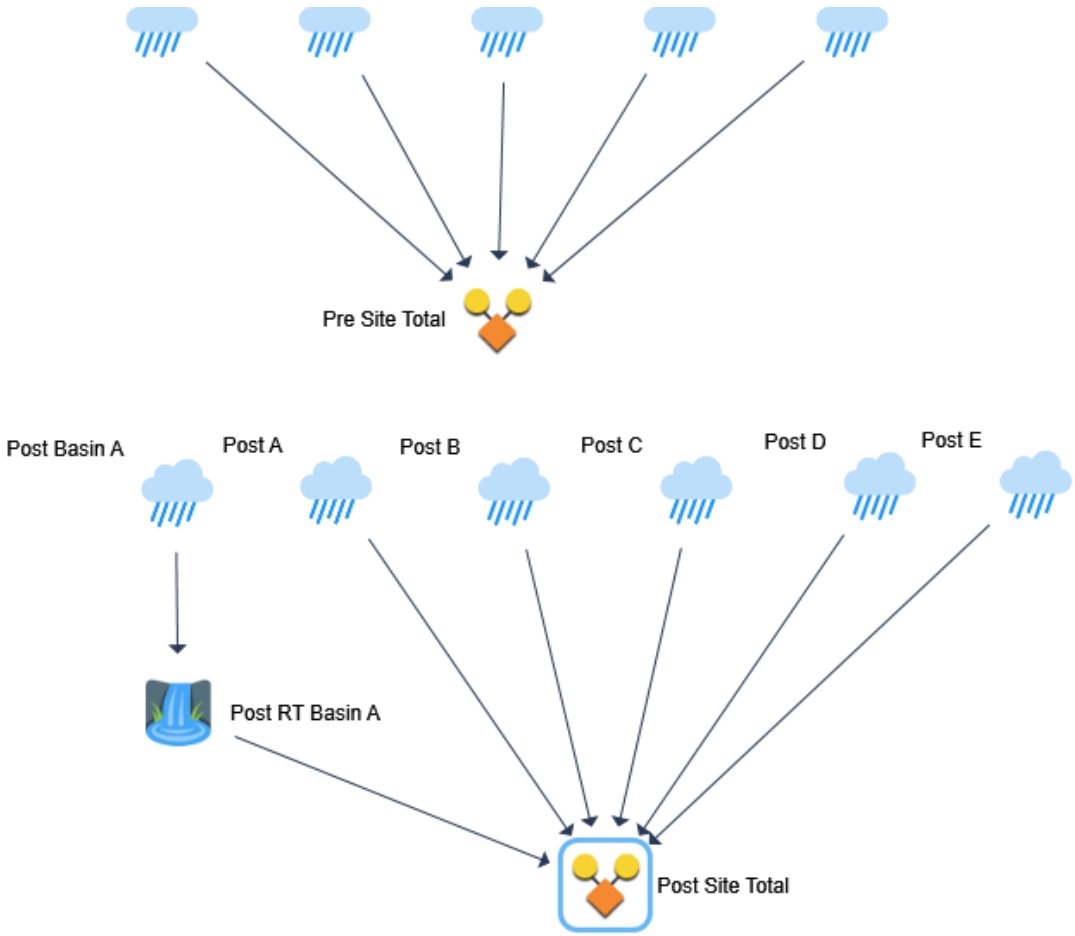
1

Basin Model

Hydrology Studio v 3.0.0.24

Project Name:

06-15-2022



Hydrograph 1-yr Summary

Project Name:

06-15-2022

Hydrology Studio v 3.0.0.24

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre A	0.061	12.60	1,181	----		
2	NRCS Runoff	Pre B	0.521	12.13	2,325	----		
3	NRCS Runoff	Pre C	0.003	14.83	92.4	----		
4	NRCS Runoff	Pre D	0.005	14.57	140	----		
5	NRCS Runoff	Pre E	0.257	12.10	916	----		
6	Junction	Pre Site Total	0.775	12.13	4,655	1, 2, 3, 4, 5		
7	NRCS Runoff	Post Basin A	2.626	12.07	7,914	----		
8	Pond Route	Post RT Basin A	0.438	12.57	7,904	7	482.39	2,976
9	NRCS Runoff	Post A	0.012	15.27	332	----		
10	NRCS Runoff	Post B	0.000	22.73	5.29	----		
11	NRCS Runoff	Post C	0.000	0.00	0.000	----		
12	NRCS Runoff	Post D	0.081	12.13	533	----		
13	NRCS Runoff	Post E	0.298	12.10	1,041	----		
14	Junction	Post Site Total	0.746	12.13	9,815	8, 9, 10, 11, 12, 13		

Hydrograph 10-yr Summary

Project Name:

06-15-2022

Hydrology Studio v 3.0.0.24

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre A	2.306	12.23	11,328	----		
2	NRCS Runoff	Pre B	2.884	12.10	10,099	----		
3	NRCS Runoff	Pre C	0.292	12.13	1,370	----		
4	NRCS Runoff	Pre D	0.452	12.10	1,793	----		
5	NRCS Runoff	Pre E	0.847	12.10	2,893	----		
6	Junction	Pre Site Total	6.297	12.13	27,482	1, 2, 3, 4, 5		
7	NRCS Runoff	Post Basin A	7.522	12.07	22,658	----		
8	Pond Route	Post RT Basin A	2.951	12.27	22,647	7	483.86	7,540
9	NRCS Runoff	Post A	1.063	12.27	6,158	----		
10	NRCS Runoff	Post B	0.076	12.13	511	----		
11	NRCS Runoff	Post C	0.010	12.43	189	----		
12	NRCS Runoff	Post D	0.957	12.07	3,058	----		
13	NRCS Runoff	Post E	0.906	12.10	3,101	----		
14	Junction	Post Site Total	5.077	12.23	35,666	8, 9, 10, 11, 12, 13		

Hydrograph 25-yr Summary

Project Name:

06-15-2022

Hydrology Studio v 3.0.0.24

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre A	4.110	12.20	18,353	----		
2	NRCS Runoff	Pre B	4.237	12.10	14,578	----		
3	NRCS Runoff	Pre C	0.582	12.13	2,320	----		
4	NRCS Runoff	Pre D	0.874	12.07	2,995	----		
5	NRCS Runoff	Pre E	1.146	12.10	3,926	----		
6	Junction	Pre Site Total	10.22	12.13	42,172	1, 2, 3, 4, 5		
7	NRCS Runoff	Post Basin A	9.907	12.07	30,140	----		
8	Pond Route	Post RT Basin A	5.217	12.17	30,130	7	484.21	8,890
9	NRCS Runoff	Post A	2.183	12.23	10,635	----		
10	NRCS Runoff	Post B	0.226	12.10	963	----		
11	NRCS Runoff	Post C	0.054	12.30	461	----		
12	NRCS Runoff	Post D	1.505	12.07	4,624	----		
13	NRCS Runoff	Post E	1.208	12.10	4,160	----		
14	Junction	Post Site Total	9.466	12.17	50,973	8, 9, 10, 11, 12, 13		

Hydrograph 100-yr Summary

Project Name:

06-15-2022

Hydrology Studio v 3.0.0.24

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre A	7.309	12.20	30,842	----		
2	NRCS Runoff	Pre B	6.435	12.10	21,975	----		
3	NRCS Runoff	Pre C	1.104	12.10	4,055	----		
4	NRCS Runoff	Pre D	1.643	12.07	5,173	----		
5	NRCS Runoff	Pre E	1.608	12.10	5,567	----		
6	Junction	Pre Site Total	16.93	12.13	67,611	1, 2, 3, 4, 5		
7	NRCS Runoff	Post Basin A	13.56	12.07	41,888	----		
8	Pond Route	Post RT Basin A	7.364	12.17	41,877	7	484.76	11,276
9	NRCS Runoff	Post A	4.307	12.20	18,894	----		
10	NRCS Runoff	Post B	0.528	12.07	1,837	----		
11	NRCS Runoff	Post C	0.230	12.10	1,051	----		
12	NRCS Runoff	Post D	2.425	12.07	7,290	----		
13	NRCS Runoff	Post E	1.672	12.10	5,830	----		
14	Junction	Post Site Total	15.21	12.13	76,781	8, 9, 10, 11, 12, 13		

Pre-developed Tc

2

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/13/2022
Rev'd: 00/00/00

Watershed: **Pre Drainage Area A**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B		
Surface Description (table 3-1)		grass		
Manning's Roughness Coefficient, n (table 3-1)		0.41		
Flow Length, L	ft.	100		
Two Year 24 Hour Rainfall, P2	in.	3.5		
Land Slope, s	ft/ft	0.0500		
Tt = $\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.2419		
Sheet flow Subtotal Tt =	**hr**			**0.2419**

Shallow concentrated flow

	Segment ID	B - C		
Surface Description (paved or unpaved)		unpaved		
Flow Length, L	ft	26		
Watercourse Slope, s	ft/ft	0.4808		
Average Velociity, V (figure 3-1)	fps	11.19		
Tt = $\frac{L}{(3600 \times V)}$	hr	0.0006		
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0006**

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.2426
T lag = 0.6Tt = 0.1455

Total Hydraulic Length = 126
Total Elevation Change = 17.5
Average Slope = 13.89%

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/13/2022
Rev'd: 00/00/00

Watershed: **Pre Drainage Area B**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B	B - C	
Surface Description (table 3-1)		gravel	grass	
Manning's Roughness Coefficient, n (table 3-1)		0.011	0.41	
Flow Length, L	ft.	46	54	
Two Year 24 Hour Rainfall, P2	in.	3.5	3.5	
Land Slope, s	ft/ft	0.0543	0.0556	
Tt = $\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.0070	0.1417	
Sheet flow Subtotal Tt =	**hr**			**0.1486**

Shallow concentrated flow

	Segment ID	C - D		
Surface Description (paved or unpaved)		unpaved		
Flow Length, L	ft	150		
Watercourse Slope, s	ft/ft	0.0500		
Average Velociity, V (figure 3-1)	fps	3.61		
Tt = $\frac{L}{(3600 \times V)}$	hr	0.0115		
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0115**

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.1602
T lag = 0.6Tt = 0.0961

Total Hydraulic Length = 250
Total Elevation Change = 13.0
Average Slope = 5.20%

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/13/2022
Rev'd: 00/00/00

Watershed: **Pre Drainage Area C**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B	B - C	
Surface Description (table 3-1)		grass	woods	
Manning's Roughness Coefficient, n (table 3-1)		0.41	0.4	
Flow Length, L	ft.	25	37	
Two Year 24 Hour Rainfall, P2	in.	3.5	3.5	
Land Slope, s	ft/ft	0.0500	0.0946	
Tt = $\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.0798	0.0830	
Sheet flow Subtotal Tt =	**hr**			**0.1628**

Shallow concentrated flow

	Segment ID	B - C		
Surface Description (paved or unpaved)		unpaved		
Flow Length, L	ft	10		
Watercourse Slope, s	ft/ft	0.4500		
Average Velociity, V (figure 3-1)	fps	10.82		
Tt = $\frac{L}{(3600 \times V)}$	hr	0.0003		
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0003**

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.1630
T lag = 0.6Tt = 0.0978

Total Hydraulic Length = 72
Total Elevation Change = 9.3
Average Slope = 12.85%

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/13/2022
Rev'd: 00/00/00

Watershed: **Pre Drainage Area D**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B		
Surface Description (table 3-1)		gravel		
Manning's Roughness Coefficient, n (table 3-1)		0.011		
Flow Length, L	ft.	60		
Two Year 24 Hour Rainfall, P2	in.	3.5		
Land Slope, s	ft/ft	0.0583		
Tt = $\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.0084		
Sheet flow Subtotal Tt =	**hr**			**0.0084**

Shallow concentrated flow

	Segment ID	B - C		
Surface Description (paved or unpaved)		unpaved		
Flow Length, L	ft	25		
Watercourse Slope, s	ft/ft	0.1800		
Average Velociity, V (figure 3-1)	fps	6.85		
Tt = $\frac{L}{(3600 \times V)}$	hr	0.0010		
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0010**

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.0094
T lag = 0.6Tt = 0.0056

Total Hydraulic Length = 85
Total Elevation Change = 8.0
Average Slope = 9.41%

Use 5 minutes

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/13/2022
Rev'd: 00/00/00

Watershed: **Pre Drainage Area E**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B		
Surface Description (table 3-1)		woods		
Manning's Roughness Coefficient, n (table 3-1)		0.4		
Flow Length, L	ft.	65		
Two Year 24 Hour Rainfall, P2	in.	3.5		
Land Slope, s	ft/ft	0.0654		
Tt = $\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.1510		
Sheet flow Subtotal Tt =	**hr**			**0.1510**

Shallow concentrated flow

	Segment ID			
Surface Description (paved or unpaved)				
Flow Length, L	ft			
Watercourse Slope, s	ft/ft			
Average Velociity, V (figure 3-1)	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Shallow concentrated flow Subtotal Tt =	**hr**			

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.1510
T lag = 0.6Tt = 0.0906

Total Hydraulic Length = 65
Total Elevation Change = 4.3
Average Slope = 6.54%

Post-developed Tc

3

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/14/2022
Rev'd: 00/00/00

Watershed: **Post Drainage Area Basin A**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B		
Surface Description (table 3-1)		gravel		
Manning's Roughness Coefficient, n (table 3-1)		0.011		
Flow Length, L	ft.	100		
Two Year 24 Hour Rainfall, P2	in.	3.5		
Land Slope, s	ft/ft	0.0400		
Tt = 0.007(nL)^0.8 / (P2^0.5)(s^0.4)	hr	0.0146		
Sheet flow Subtotal Tt =	**hr**			**0.0146**

Shallow concentrated flow

	Segment ID	B - C	C - D	
Surface Description (paved or unpaved)		unpaved	unpaved	
Flow Length, L	ft	46	20	
Watercourse Slope, s	ft/ft	0.0380	0.0125	
Average Velociity, V (figure 3-1)	fps	3.15	1.80	
Tt = L / (3600 x V)	hr	0.0041	0.0031	
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0071**

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = L / (3600 x V)	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID	D - E		
Structure 'From' - 'To'		Pipe		
Flow Length, L	ft	426		
Pipe Diameter, D	in	15.00		
Manning's Roughness Coefficient, n		0.011		
Pipe Slope, s	ft/ft	0.005		
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps	6.33		
Tt = L / (3600 x V)	hr	0.0187		
Pipe flow Subtotal Tt =	**hr**			**0.0187**

Total Tt = 0.0405
T lag = 0.6Tt = 0.0243

Total Hydraulic Length = 592
Total Elevation Change = 17.0
Average Slope = 2.87%

Use 5 Minutes

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/14/2022
Rev'd: 00/00/00

Watershed: **Post Bypass Area A**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B		
Surface Description (table 3-1)		grass		
Manning's Roughness Coefficient, n (table 3-1)		0.41		
Flow Length, L	ft.	100		
Two Year 24 Hour Rainfall, P2	in.	3.5		
Land Slope, s	ft/ft	0.0500		
Tt = $\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.2419		
Sheet flow Subtotal Tt =	**hr**			**0.2419**

Shallow concentrated flow

	Segment ID	B - C		
Surface Description (paved or unpaved)		unpaved		
Flow Length, L	ft	26		
Watercourse Slope, s	ft/ft	0.4808		
Average Velociity, V (figure 3-1)	fps	11.19		
Tt = $\frac{L}{(3600 \times V)}$	hr	0.0006		
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0006**

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.2426
T lag = 0.6Tt = 0.1455

Total Hydraulic Length = 126
Total Elevation Change = 17.5
Average Slope = 13.89%

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/14/2022
Rev'd: 00/00/00

Watershed: **Post Bypass Area B**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B		
Surface Description (table 3-1)		grass		
Manning's Roughness Coefficient, n (table 3-1)		0.41		
Flow Length, L	ft.	30		
Two Year 24 Hour Rainfall, P2	in.	3.5		
Land Slope, s	ft/ft	0.3167		
Tt = $\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.0441		
Sheet flow Subtotal Tt =	**hr**			**0.0441**

Shallow concentrated flow

	Segment ID			
Surface Description (paved or unpaved)				
Flow Length, L	ft			
Watercourse Slope, s	ft/ft			
Average Velociity, V (figure 3-1)	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Shallow concentrated flow Subtotal Tt =	**hr**			

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.0441
T lag = 0.6Tt = 0.0265

Total Hydraulic Length = 30
Total Elevation Change = 9.5
Average Slope = 31.67%

Use 5 Minutes

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/14/2022
Rev'd: 00/00/00

Watershed: **Post Bypass Area C**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B	B - C	
Surface Description (table 3-1)		gravel	woods	
Manning's Roughness Coefficient, n (table 3-1)		0.011	0.4	
Flow Length, L	ft.	13	24	
Two Year 24 Hour Rainfall, P2	in.	3.5	3.5	
Land Slope, s	ft/ft	0.0769	0.1042	
Tt = $\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.0022	0.0565	
Sheet flow Subtotal Tt =	**hr**			**0.0587**

Shallow concentrated flow

	Segment ID	B - C		
Surface Description (paved or unpaved)		unpaved		
Flow Length, L	ft	10		
Watercourse Slope, s	ft/ft	0.4500		
Average Velociity, V (figure 3-1)	fps	10.82		
Tt = $\frac{L}{(3600 \times V)}$	hr	0.0003		
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0003**

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.0589
T lag = 0.6Tt = 0.0354

Total Hydraulic Length = 47
Total Elevation Change = 8.0
Average Slope = 17.02%

Use 5 Minutes

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/14/2022
Rev'd: 00/00/00

Watershed: **Post Bypass Area D**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B		
Surface Description (table 3-1)		gravel		
Manning's Roughness Coefficient, n (table 3-1)		0.011		
Flow Length, L	ft.	60		
Two Year 24 Hour Rainfall, P2	in.	3.5		
Land Slope, s	ft/ft	0.0583		
Tt = $\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.0084		
Sheet flow Subtotal Tt =	**hr**			**0.0084**

Shallow concentrated flow

	Segment ID	B - C		
Surface Description (paved or unpaved)		unpaved		
Flow Length, L	ft	25		
Watercourse Slope, s	ft/ft	0.1800		
Average Velociity, V (figure 3-1)	fps	6.85		
Tt = $\frac{L}{(3600 \times V)}$	hr	0.0010		
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0010**

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.0094
T lag = 0.6Tt = 0.0056

Total Hydraulic Length = 85
Total Elevation Change = 8.0
Average Slope = 9.41%

Use 5 minutes

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/14/2022
Rev'd: 00/00/00

Watershed: **Post Bypass Area E**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B		
Surface Description (table 3-1)		woods		
Manning's Roughness Coefficient, n (table 3-1)		0.4		
Flow Length, L	ft.	65		
Two Year 24 Hour Rainfall, P2	in.	3.5		
Land Slope, s	ft/ft	0.0654		
Tt = $\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.1510		
Sheet flow Subtotal Tt =	**hr**			**0.1510**

Shallow concentrated flow

	Segment ID			
Surface Description (paved or unpaved)				
Flow Length, L	ft			
Watercourse Slope, s	ft/ft			
Average Velociity, V (figure 3-1)	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Shallow concentrated flow Subtotal Tt =	**hr**			

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.1510
T lag = 0.6Tt = 0.0906

Total Hydraulic Length = 65
Total Elevation Change = 4.3
Average Slope = 6.54%

Pre-developed Cn

4

Independence Engineering

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/13/2022
Rev'd: 00/00/00

Watershed: **Pre Drainage Area A**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
A	Impervious	98	0.311	30.51
A	Open Space-Poor	68	0.982	66.81
A	Gravel	76	0.191	14.54
A	Woods - Good	30	1.329	39.87
D	Open Space-Poor	89	0.005	0.48
D	Woods-Good	79	0.315	24.91
		Totals =	3.135	177.11

Composite Cn = $\frac{177.11}{3.13}$ = 56.50

USE Cn = 56.5

24 hr RAINFALL

(per SWM ordinance Town of Newburgh NY)

1 year	10 year	25 year	100 year
2.90	5.50	6.50	8.00

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/13/2022
Rev'd: 00/00/00

Watershed: **Pre Drainage Area B**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
A	Impervious	98	0.237	23.25
A	Open Space-Poor	68	0.852	57.91
A	Gravel	76	0.183	13.94
A	Woods - Good	30	0.157	4.71
Totals =			1.429	99.81

Composite Cn = $\frac{99.81}{1.43}$ = 69.83

USE Cn = 69.8

24 hr RAINFALL

(per SWM ordinance Town of Newburgh NY)

1 year	10 year	25 year	100 year
2.90	5.50	6.50	8.00

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/13/2022
Rev'd: 00/00/00

Watershed: **Pre Drainage Area C**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
A	Impervious	98	0.042	4.15
A	Open Space-Poor	68	0.197	13.40
A	Gravel	76	0.008	0.58
A	Woods - Good	30	0.216	6.47
Totals =			0.463	24.60

Composite Cn = $\frac{24.60}{0.46}$ = 53.17

USE Cn = 53.2

24 hr RAINFALL

(per SWM ordinance Town of Newburgh NY)

1 year	10 year	25 year	100 year
2.90	5.50	6.50	8.00

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/13/2022
Rev'd: 00/00/00

Watershed: **Pre Drainage Area D**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
A	Impervious	98	0.018	1.76
A	Open Space-Poor	68	0.285	19.36
A	Gravel	76	0.011	0.81
A	Woods - Good	30	0.249	7.48
D	Open Space-Poor	89	0.001	0.11
D	Woods-Good	79	0.040	3.18
		Totals =	0.604	32.70

Composite Cn = $\frac{32.70}{0.60}$ = 54.13

USE Cn = 54.1

24 hr RAINFALL

(per SWM ordinance Town of Newburgh NY)

1 year	10 year	25 year	100 year
2.90	5.50	6.50	8.00

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/13/2022
Rev'd: 00/00/00

Watershed: **Pre Drainage Area E**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
D	Open Space-Poor	89	0.026	2.27
D	Woods-Good	79	0.259	20.45

Totals =	0.284	22.72

Composite Cn = $\frac{22.72}{0.28}$ = 79.90

USE Cn = 79.9

24 hr RAINFALL

(per SWM ordinance Town of Newburgh NY)

1 year	10 year	25 year	100 year
2.90	5.50	6.50	8.00

Post-developed Cn

5

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/14/2022
Rev'd: 00/00/00

Watershed: **Post Drainage Area Basin A**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
A	Impervious	98	1.284	125.87
A	Open Space-Good	39	0.319	12.44
A	Gravel	76	0.504	38.29
Totals =			2.107	176.60

Composite Cn = $\frac{176.60}{2.11}$ = 83.81

USE Cn = 83.8

24 hr RAINFALL

(per SWM ordinance Town of Newburgh NY)

1 year	10 year	25 year	100 year
2.90	5.50	6.50	8.00

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/14/2022
Rev'd: 00/00/00

Watershed: **Post Bypass Area A**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
A	Impervious	98	0.026	2.57
A	Open Space-Good	39	0.217	8.47
A	Gravel	76	0.676	51.34
A	Woods - Good	30	1.103	33.10
D	Open Space-Good	80	0.005	0.44
D	Woods-Good	79	0.287	22.67
D	Gravel	91	0.028	2.57
Totals =			2.343	121.17

Composite Cn = $\frac{121.17}{2.34}$ = 51.71

USE Cn = 51.7

24 hr RAINFALL

(per SWM ordinance Town of Newburgh NY)

1 year	10 year	25 year	100 year
2.90	5.50	6.50	8.00

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/14/2022
Rev'd: 00/00/00

Watershed: **Post Bypass Area B**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
A	Impervious	98	0.052	5.06
A	Open Space-Good	39	0.175	6.81
A	Gravel	76	0.000	0.00
A	Woods - Good	30	0.073	2.19

Totals =	0.299	14.06

Composite Cn = $\frac{14.06}{0.30}$ = 46.99

USE Cn = 47.0

24 hr RAINFALL

(per SWM ordinance Town of Newburgh NY)

1 year	10 year	25 year	100 year
2.90	5.50	6.50	8.00

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/14/2022
Rev'd: 00/00/00

Watershed: **Post Bypass Area C**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
A	Impervious	98	0.000	0.00
A	Open Space-Good	39	0.082	3.20
A	Gravel	76	0.042	3.16
A	Woods - Good	30	0.154	4.62

Totals =	0.278	10.98

Composite Cn = $\frac{10.98}{0.28}$ = 39.55

USE Cn = 39.6

24 hr RAINFALL

(per SWM ordinance Town of Newburgh NY)

1 year	10 year	25 year	100 year
2.90	5.50	6.50	8.00

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/14/2022
Rev'd: 00/00/00

Watershed: **Post Bypass Area D**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
A	Impervious	98	0.000	0.00
A	Open Space-Good	39	0.041	1.62
A	Gravel	76	0.386	29.37
A	Woods - Good	30	0.134	4.03
D	Open Space-Good	80	0.002	0.19
D	Woods-Good	79	0.032	2.51
D	Gravel	91	0.007	0.66
	Totals =		0.604	38.38

Composite Cn = $\frac{38.38}{0.60}$ = 63.58

USE Cn = 63.6

24 hr RAINFALL

(per SWM ordinance Town of Newburgh NY)

1 year	10 year	25 year	100 year
2.90	5.50	6.50	8.00

Independence Engineering

Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/14/2022
Rev'd: 00/00/00

Watershed: **Post Bypass Area E**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
D	Open Space-Good	80	0.015	1.20
D	Woods-Good	79	0.195	15.44
D	Gravel	91	0.074	6.72
Totals =			0.284	23.36

Composite Cn = $\frac{23.36}{0.28}$ = 82.17

USE Cn = 82.2

24 hr RAINFALL

(per SWM ordinance Town of Newburgh NY)

1 year	10 year	25 year	100 year
2.90	5.50	6.50	8.00

Pre- and Post-developed Hydrographs

6

Hydrograph Report

Project Name:

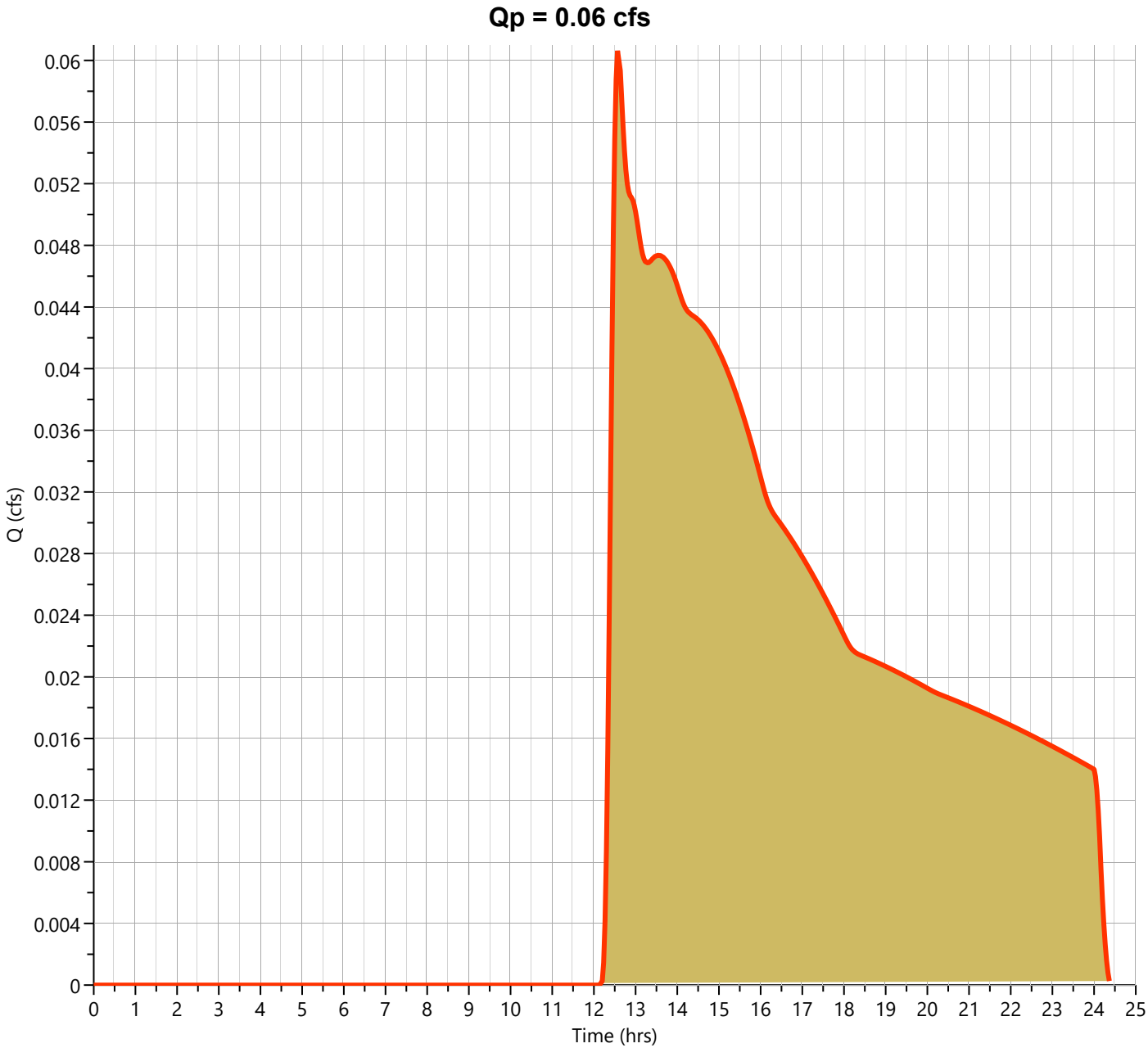
Hydrology Studio v 3.0.0.24

06-15-2022

Pre A

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.061 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.60 hrs
Time Interval	= 2 min	Runoff Volume	= 1,181 cuft
Drainage Area	= 3.135 ac	Curve Number	= 56.5
Tc Method	= User	Time of Conc. (Tc)	= 14.55 min
Total Rainfall	= 2.50 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

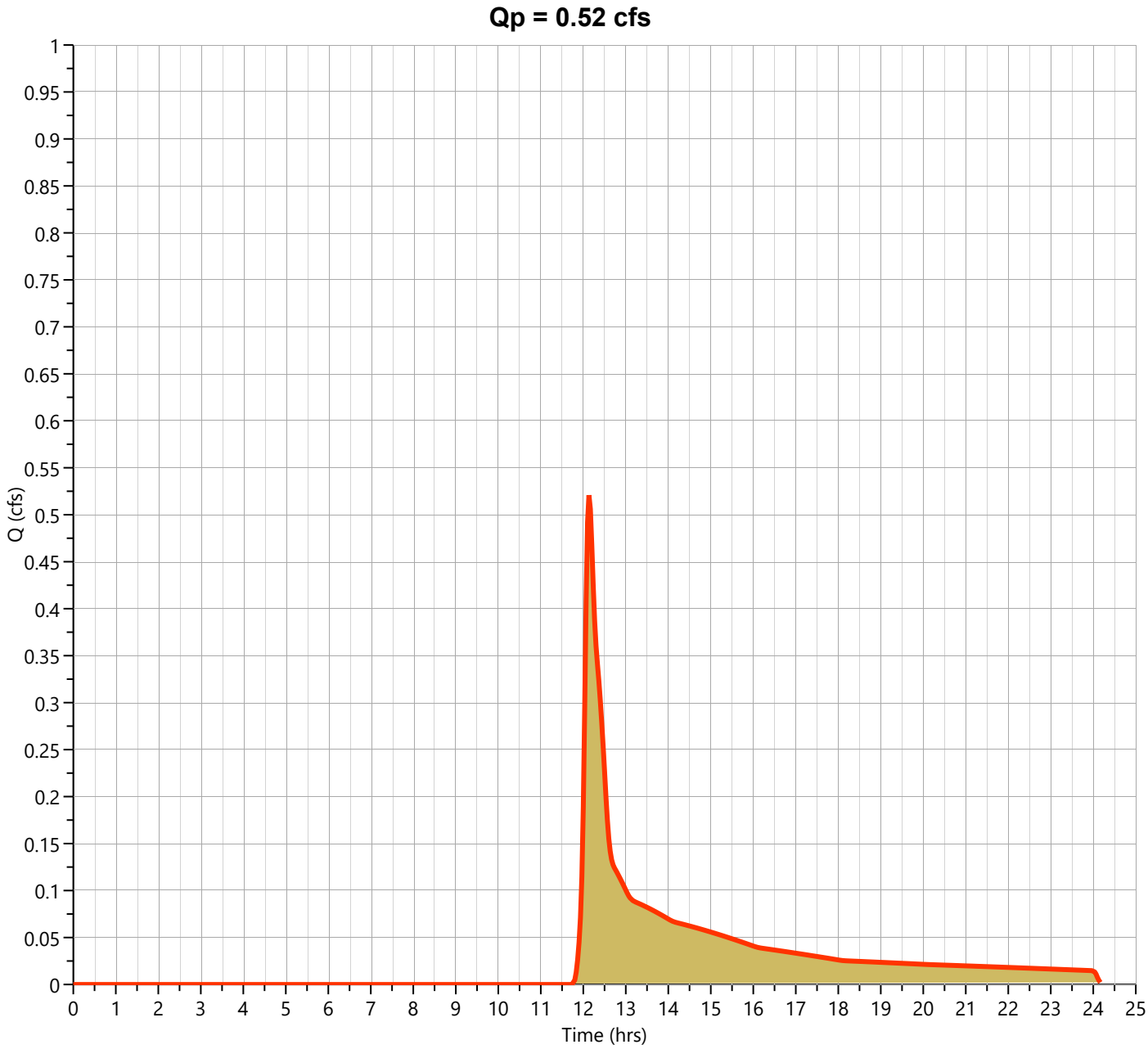
Hydrology Studio v 3.0.0.24

06-15-2022

Pre B

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.521 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 2,325 cuft
Drainage Area	= 1.429 ac	Curve Number	= 69.8
Tc Method	= User	Time of Conc. (Tc)	= 9.61 min
Total Rainfall	= 2.50 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

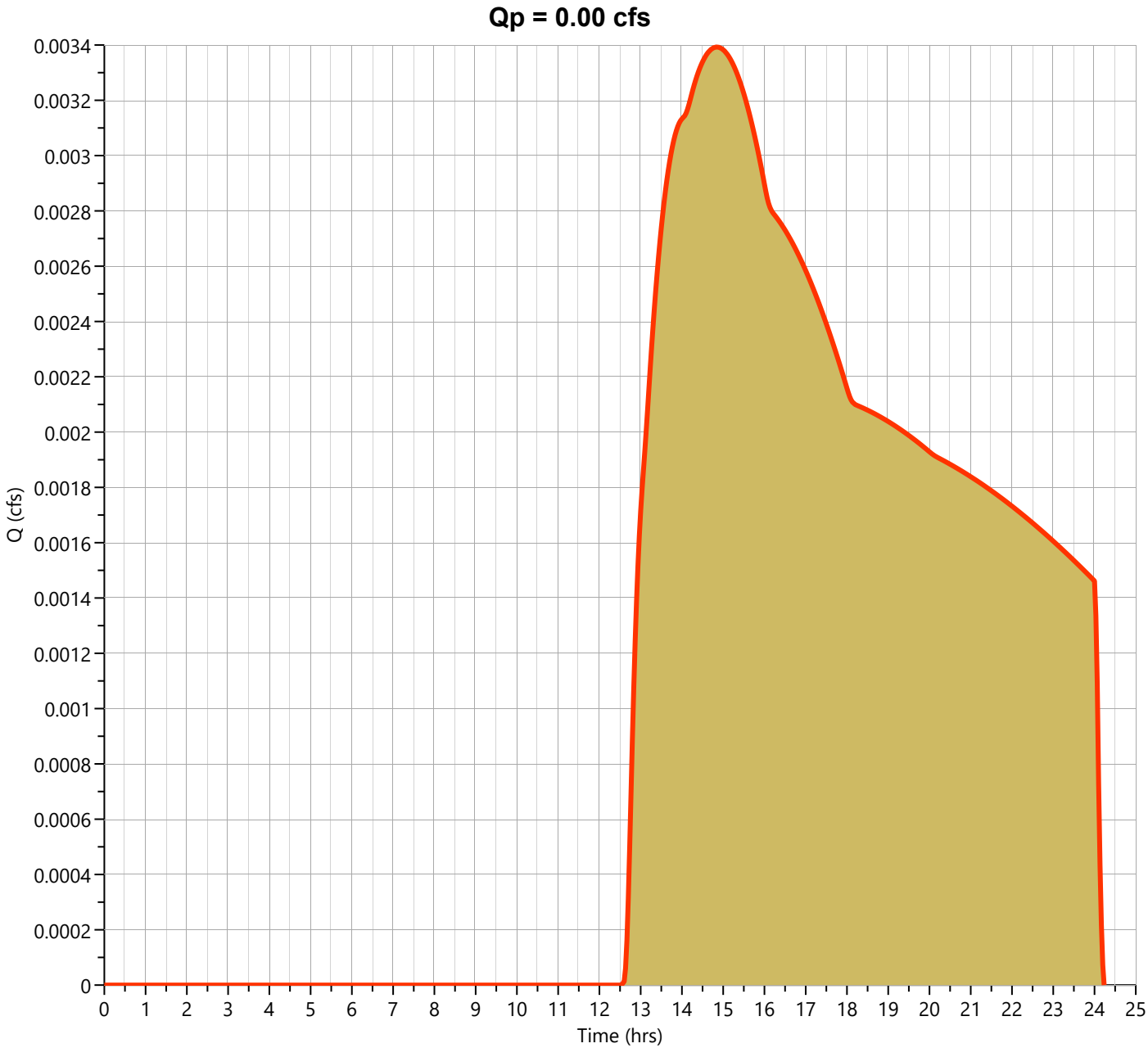
Hydrology Studio v 3.0.0.24

06-15-2022

Pre C

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.003 cfs
Storm Frequency	= 1-yr	Time to Peak	= 14.83 hrs
Time Interval	= 2 min	Runoff Volume	= 92.4 cuft
Drainage Area	= 0.463 ac	Curve Number	= 53
Tc Method	= User	Time of Conc. (Tc)	= 9.78 min
Total Rainfall	= 2.50 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

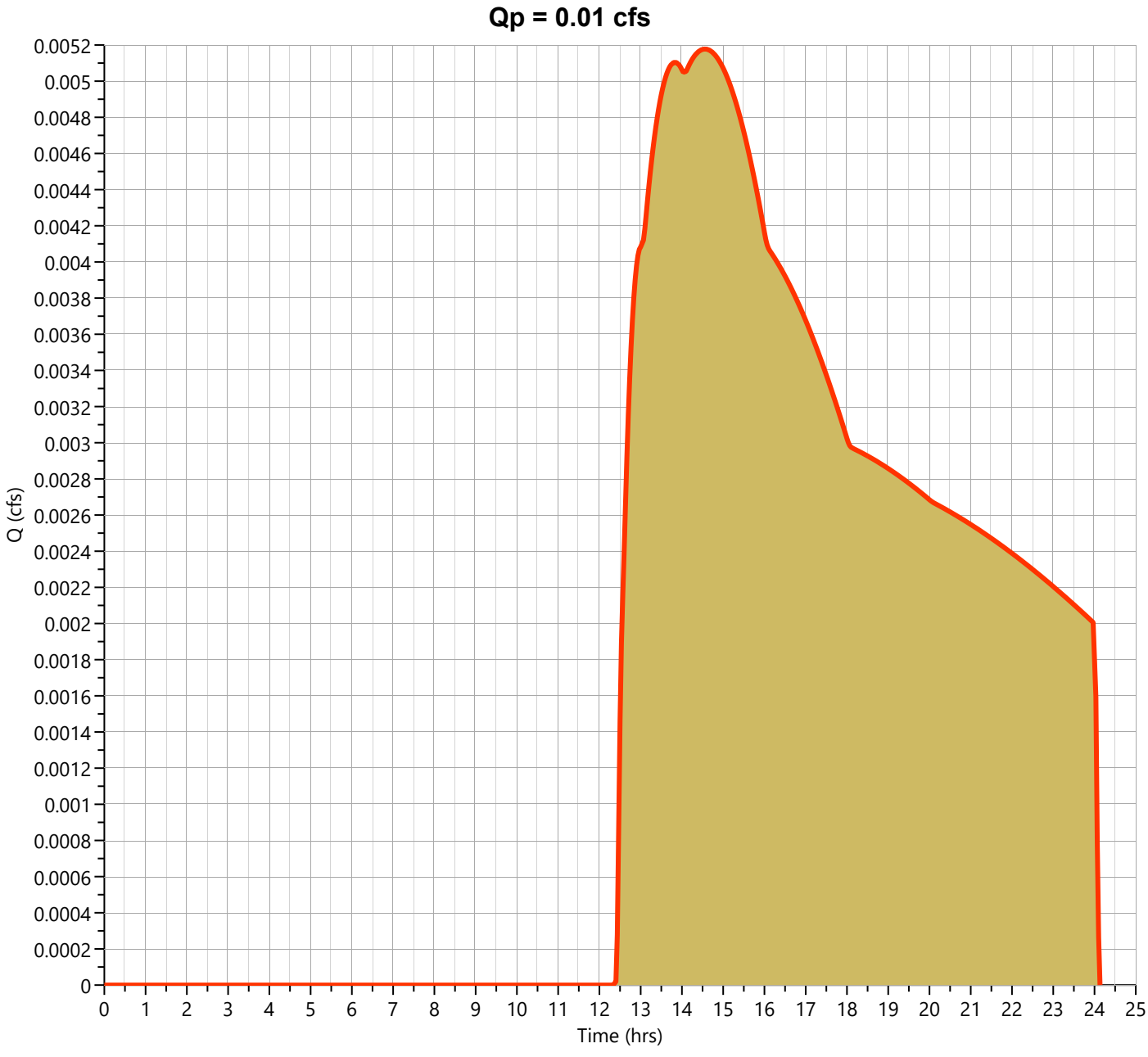
Hydrology Studio v 3.0.0.24

06-15-2022

Pre D

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.005 cfs
Storm Frequency	= 1-yr	Time to Peak	= 14.57 hrs
Time Interval	= 2 min	Runoff Volume	= 140 cuft
Drainage Area	= 0.604 ac	Curve Number	= 54
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.50 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

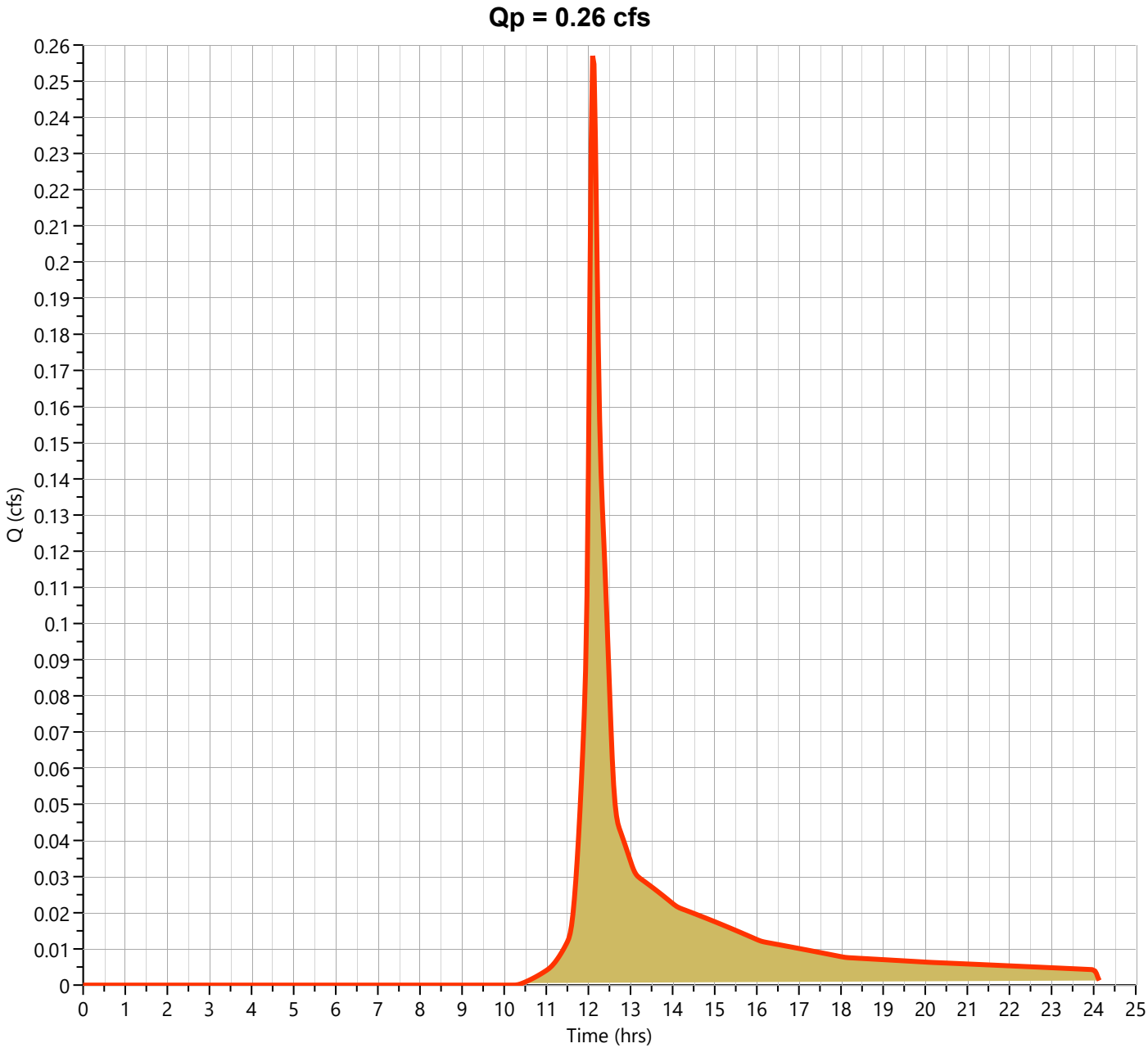
Hydrology Studio v 3.0.0.24

06-15-2022

Pre E

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.257 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 916 cuft
Drainage Area	= 0.284 ac	Curve Number	= 80
Tc Method	= User	Time of Conc. (Tc)	= 9.06 min
Total Rainfall	= 2.50 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

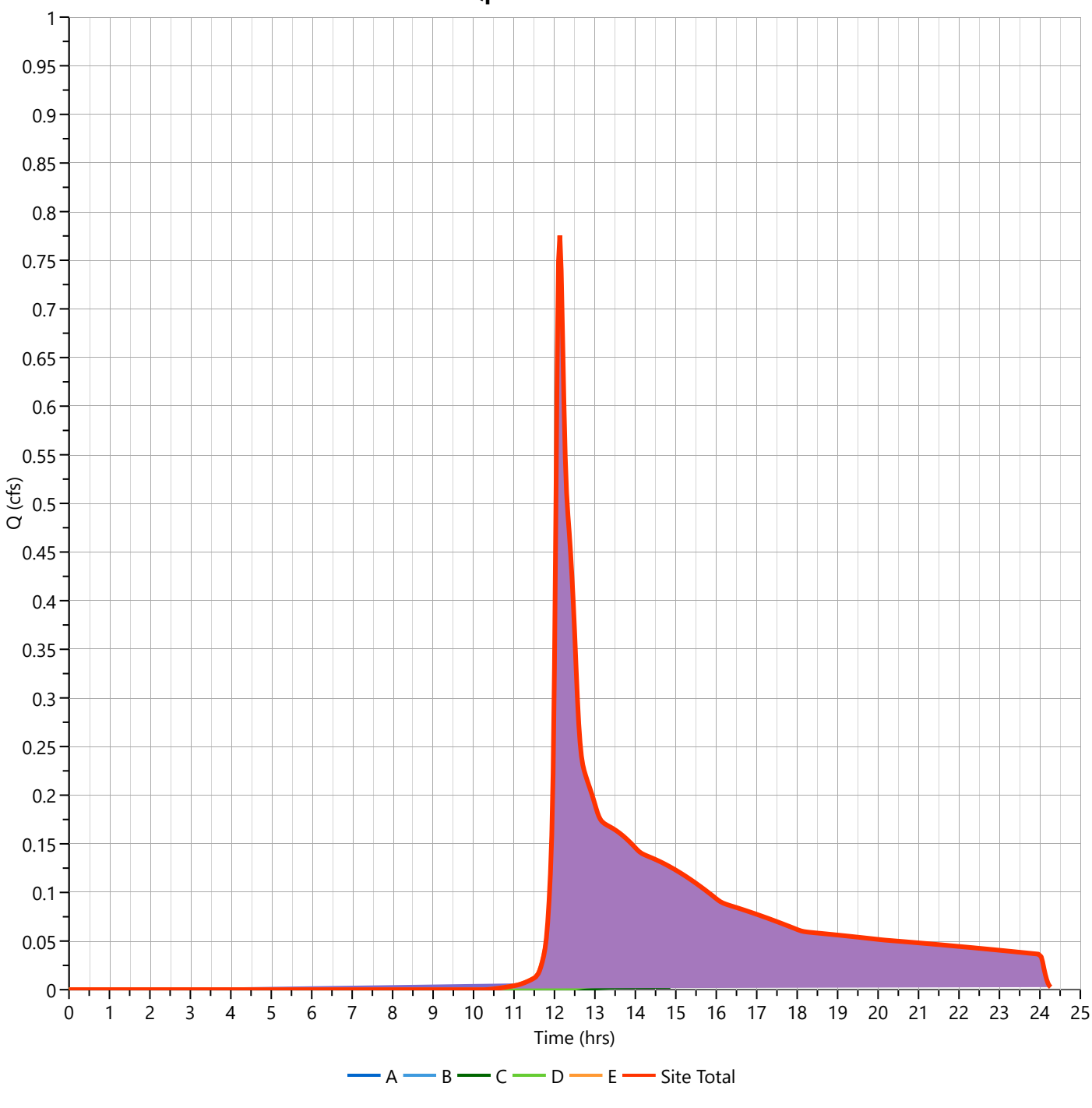
Hydrology Studio v 3.0.0.24

06-15-2022

Pre Site Total

Hyd. No. 6

Hydrograph Type	= Junction	Peak Flow	= 0.775 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 4,655 cuft
Inflow Hydrographs	= 1, 2, 3, 4, 5	Total Contrib. Area	= 5.915 ac



Hydrograph Report

Project Name:

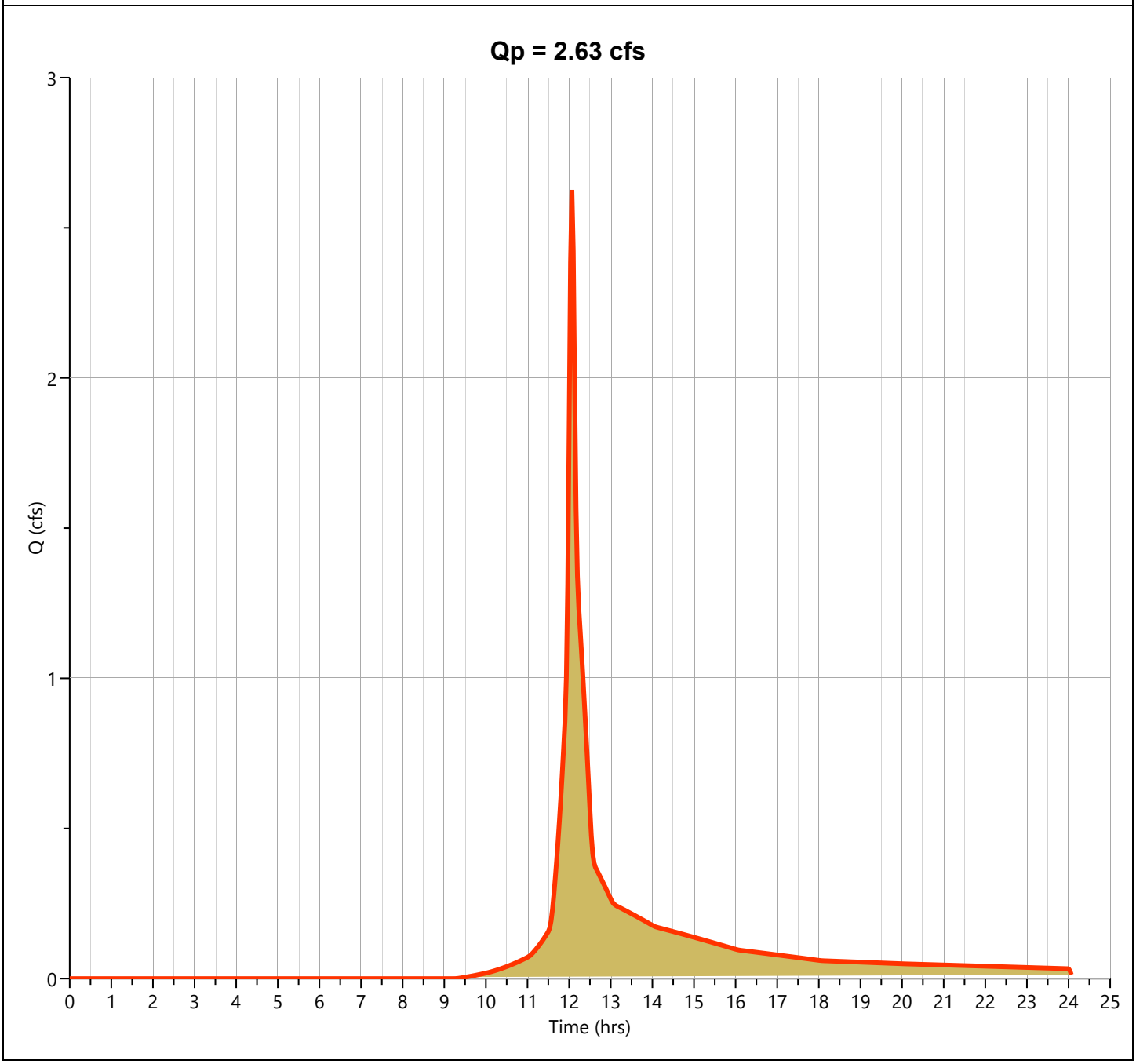
Hydrology Studio v 3.0.0.24

06-15-2022

Post Basin A

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.626 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 7,914 cuft
Drainage Area	= 2.107 ac	Curve Number	= 83.8
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.50 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-15-2022

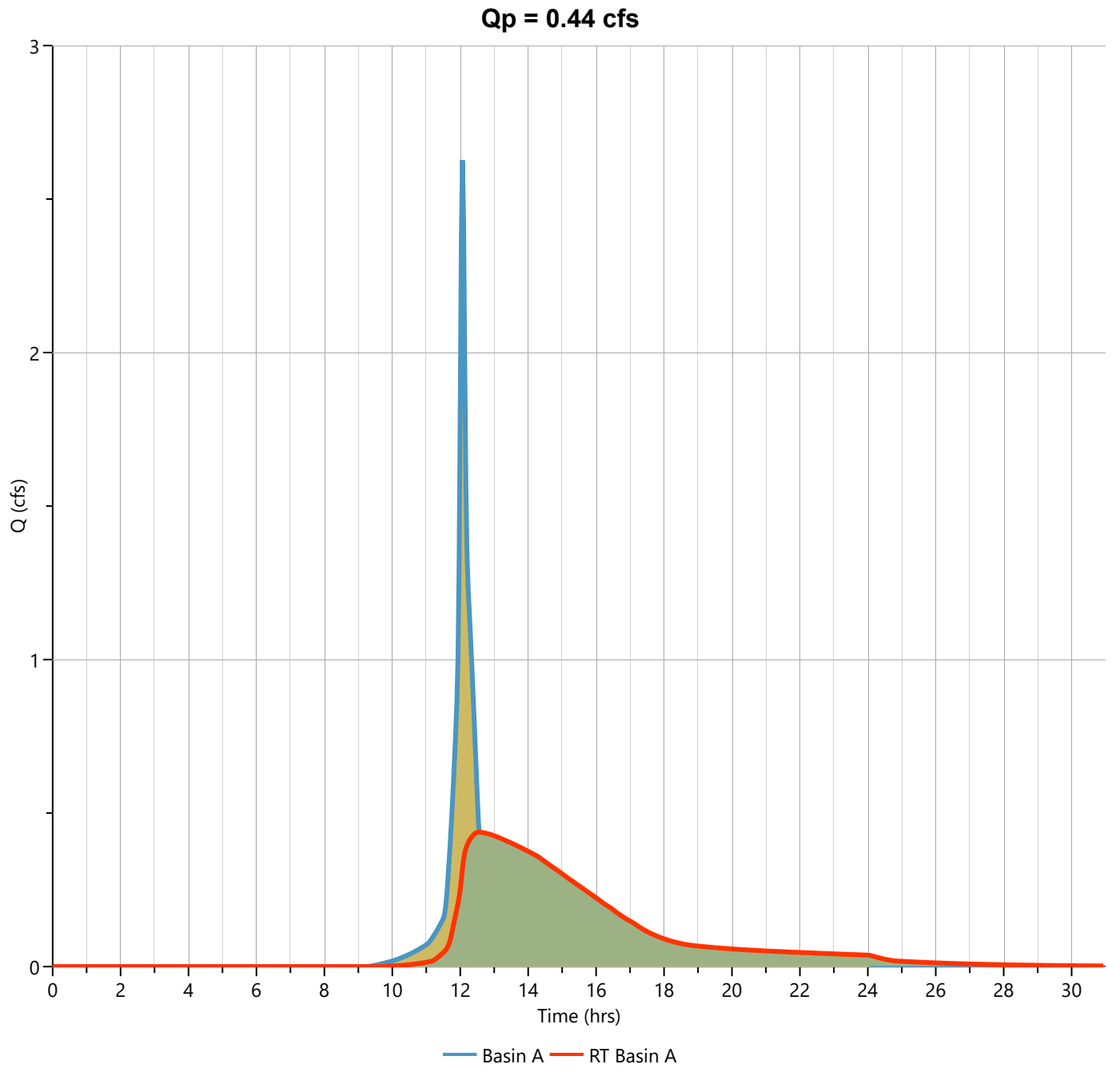
Post RT Basin A

Hyd. No. 8

Hydrograph Type	= Pond Route	Peak Flow	= 0.438 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.57 hrs
Time Interval	= 2 min	Hydrograph Volume	= 7,904 cuft
Inflow Hydrograph	= 7 - Basin A	Max. Elevation	= 482.39 ft
Pond Name	= Basin A	Max. Storage	= 2,976 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 1.50 hrs



Hydrograph Report

Project Name:

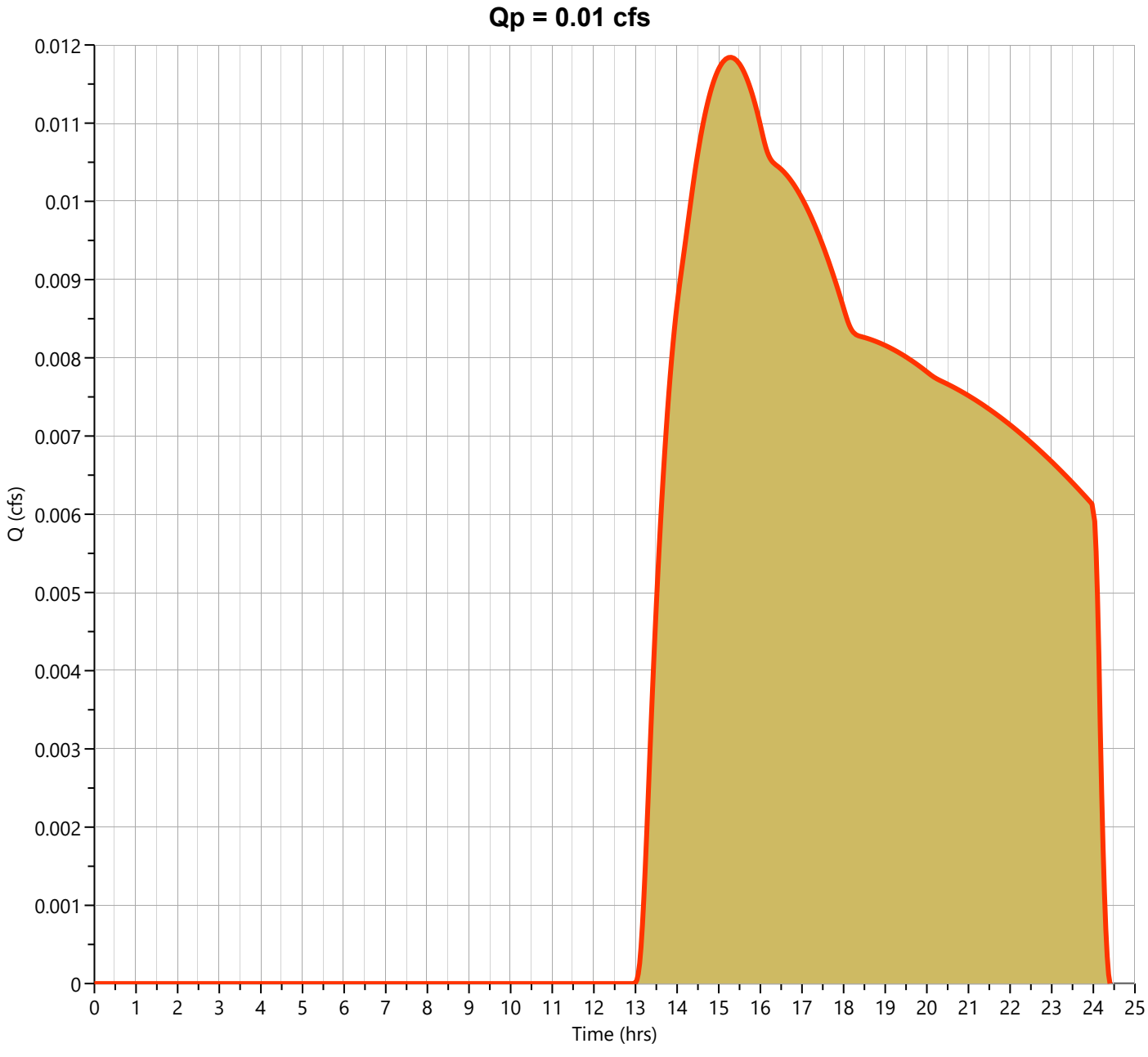
Hydrology Studio v 3.0.0.24

06-15-2022

Post A

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.012 cfs
Storm Frequency	= 1-yr	Time to Peak	= 15.27 hrs
Time Interval	= 2 min	Runoff Volume	= 332 cuft
Drainage Area	= 2.343 ac	Curve Number	= 51.7
Tc Method	= User	Time of Conc. (Tc)	= 14.55 min
Total Rainfall	= 2.50 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

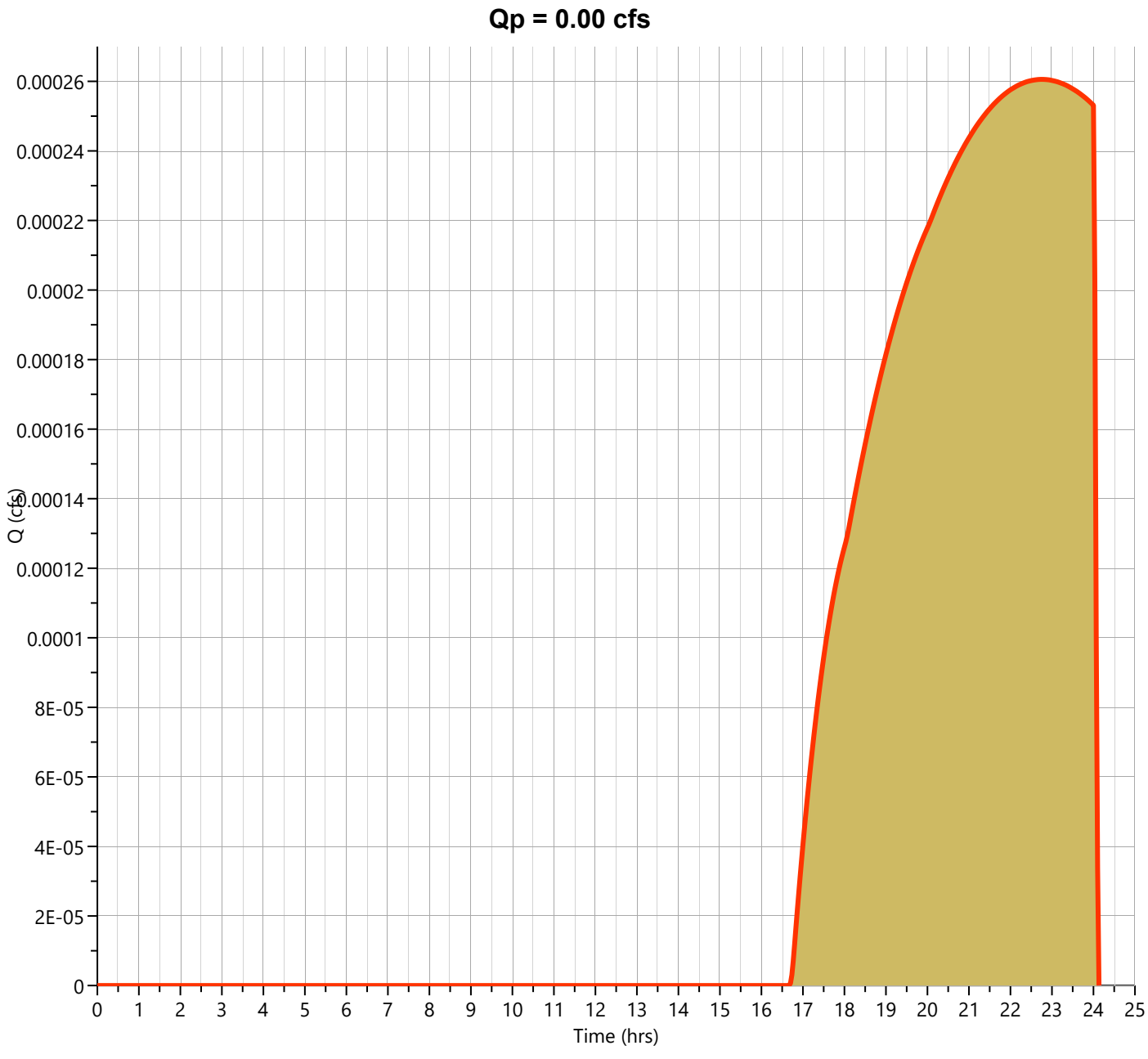
Hydrology Studio v 3.0.0.24

06-15-2022

Post B

Hyd. No. 10

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 22.73 hrs
Time Interval	= 2 min	Runoff Volume	= 5.29 cuft
Drainage Area	= 0.299 ac	Curve Number	= 47
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.50 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-15-2022

Post C

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 0.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.278 ac	Curve Number	= 39.6
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.50 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

Qp = 0.00 cfs

Hydrograph Report

Project Name:

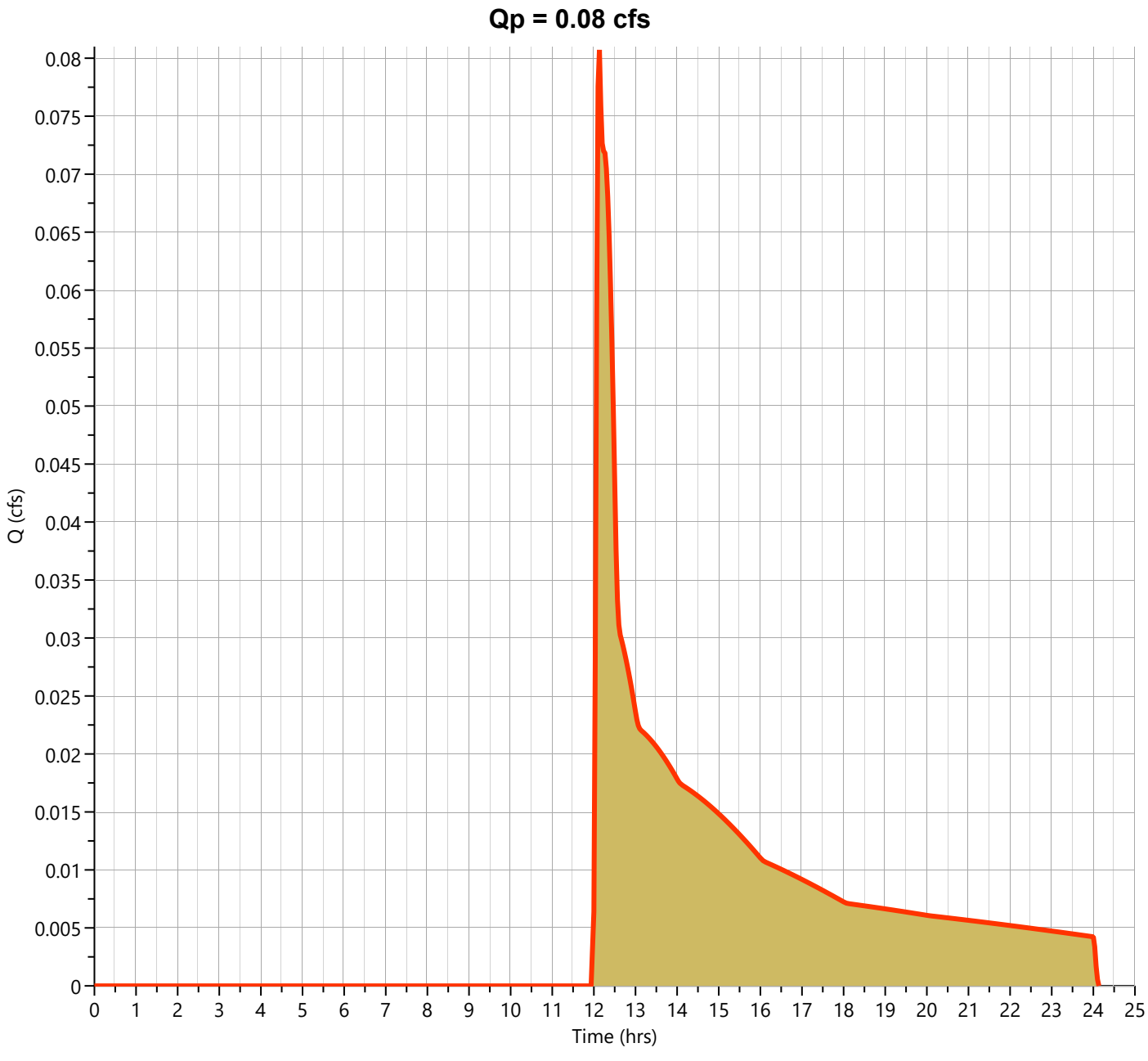
Hydrology Studio v 3.0.0.24

06-15-2022

Post D

Hyd. No. 12

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.081 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 533 cuft
Drainage Area	= 0.604 ac	Curve Number	= 63.6
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 2.50 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

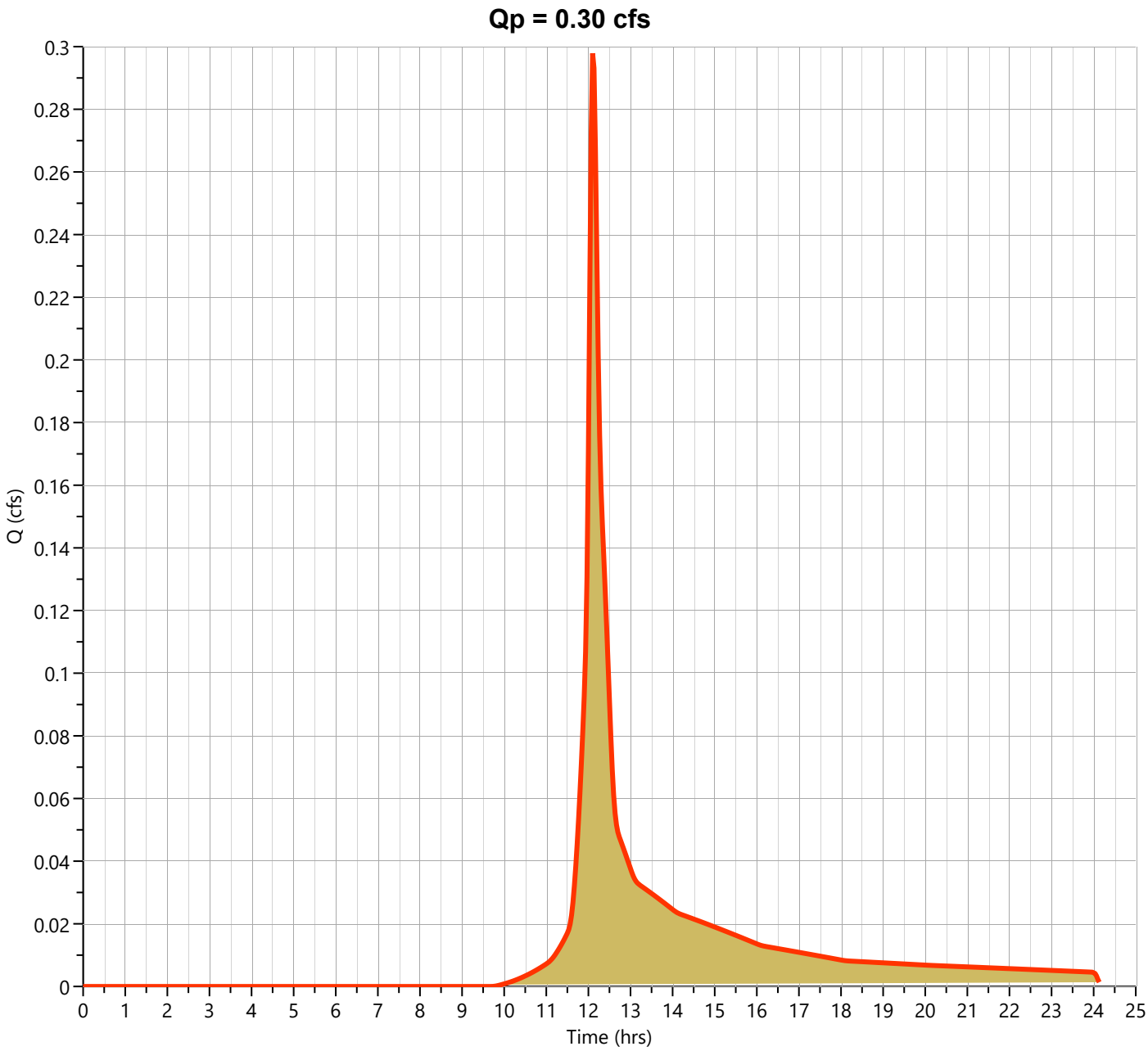
Hydrology Studio v 3.0.0.24

06-15-2022

Post E

Hyd. No. 13

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.298 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 1,041 cuft
Drainage Area	= 0.284 ac	Curve Number	= 82.2
Tc Method	= User	Time of Conc. (Tc)	= 9.06 min
Total Rainfall	= 2.50 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

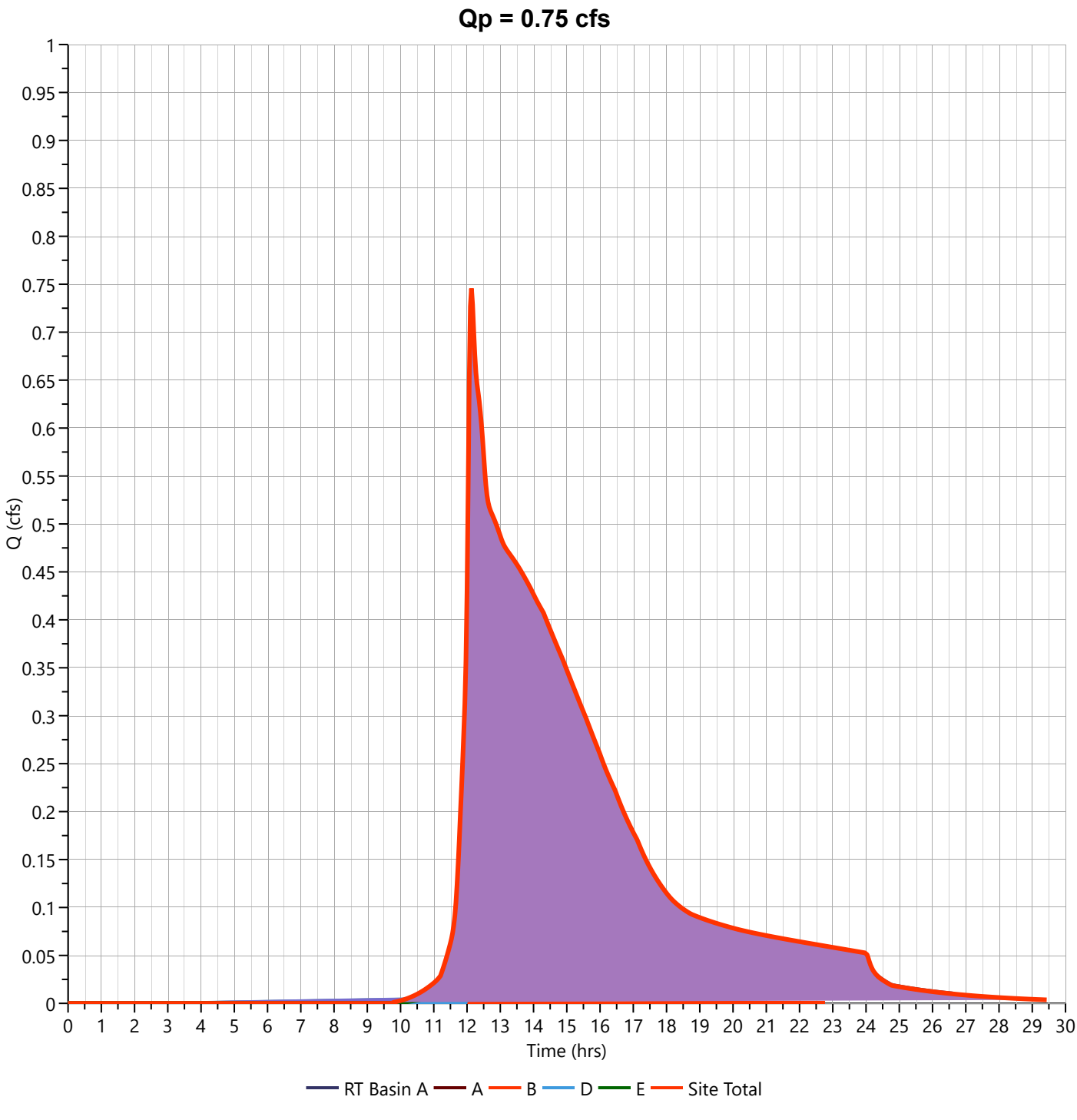
Hydrology Studio v 3.0.0.24

06-15-2022

Post Site Total

Hyd. No. 14

Hydrograph Type	= Junction	Peak Flow	= 0.746 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 9,815 cuft
Inflow Hydrographs	= 8, 9, 10, 11, 12, 13	Total Contrib. Area	= 3.808 ac



Hydrograph Report

Project Name:

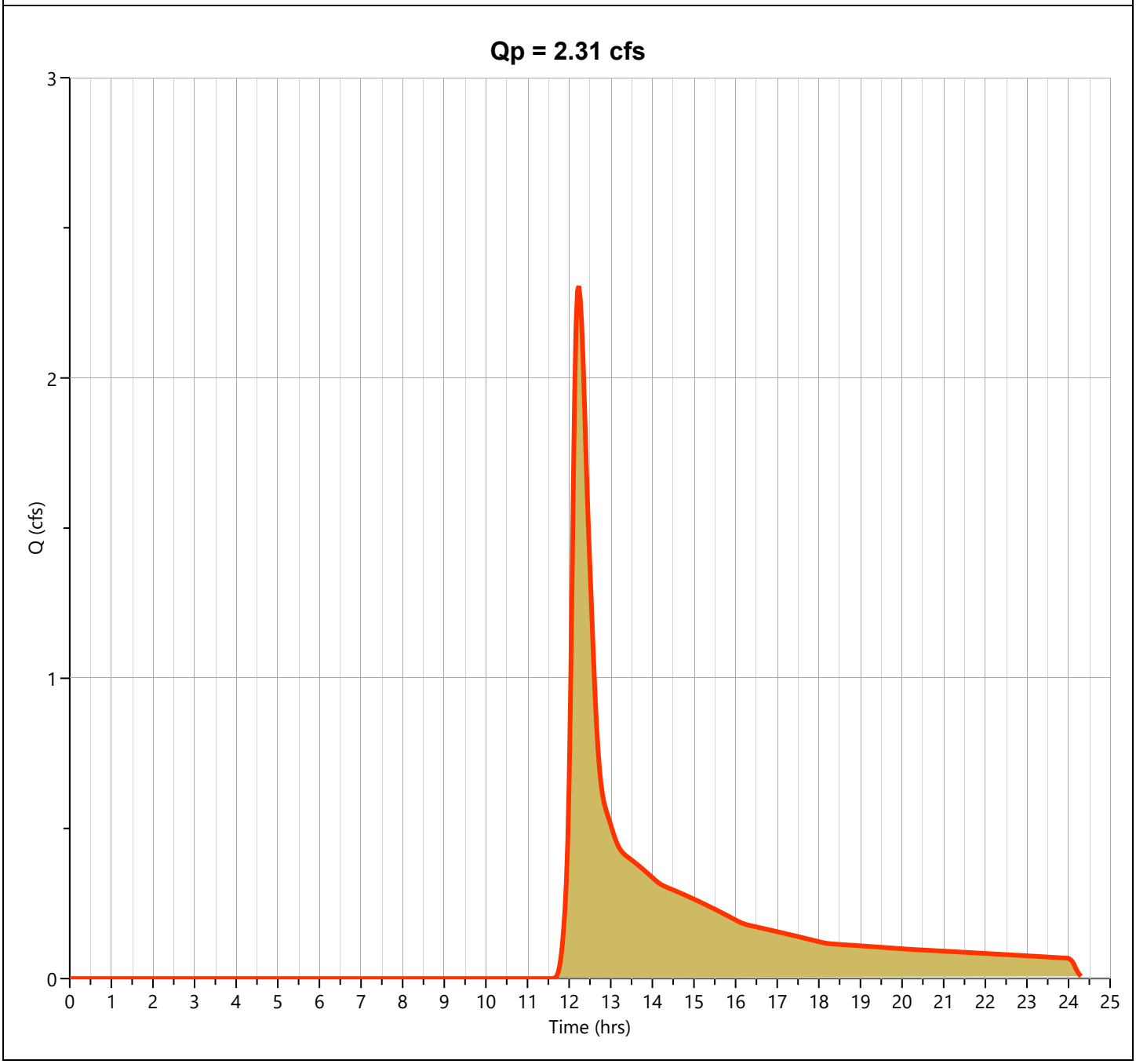
Hydrology Studio v 3.0.0.24

06-15-2022

Pre A

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.306 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.23 hrs
Time Interval	= 2 min	Runoff Volume	= 11,328 cuft
Drainage Area	= 3.135 ac	Curve Number	= 56.5
Tc Method	= User	Time of Conc. (Tc)	= 14.55 min
Total Rainfall	= 4.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

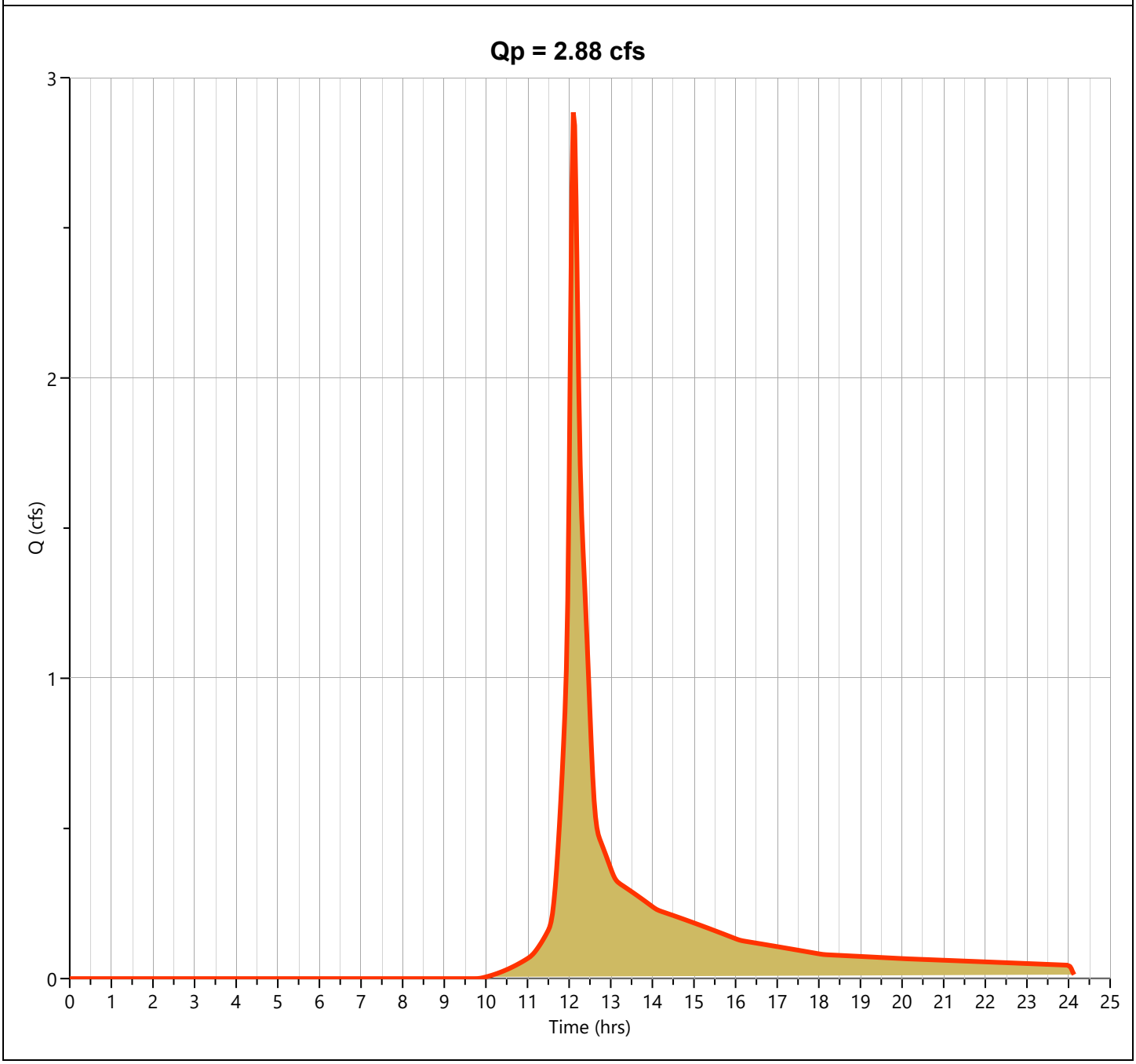
Hydrology Studio v 3.0.0.24

06-15-2022

Pre B

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.884 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 10,099 cuft
Drainage Area	= 1.429 ac	Curve Number	= 69.8
Tc Method	= User	Time of Conc. (Tc)	= 9.61 min
Total Rainfall	= 4.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

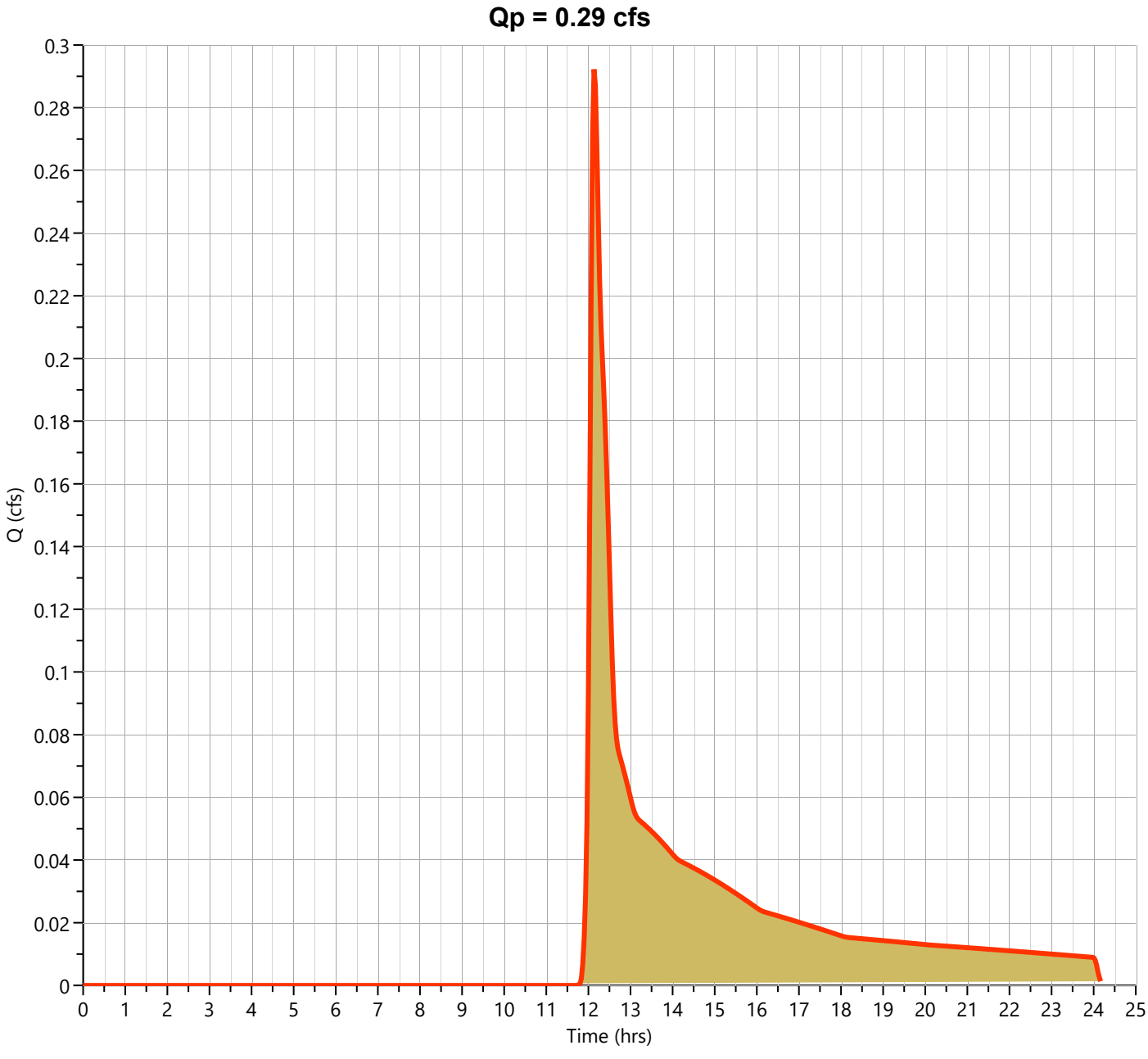
Hydrology Studio v 3.0.0.24

06-15-2022

Pre C

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.292 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 1,370 cuft
Drainage Area	= 0.463 ac	Curve Number	= 53
Tc Method	= User	Time of Conc. (Tc)	= 9.78 min
Total Rainfall	= 4.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

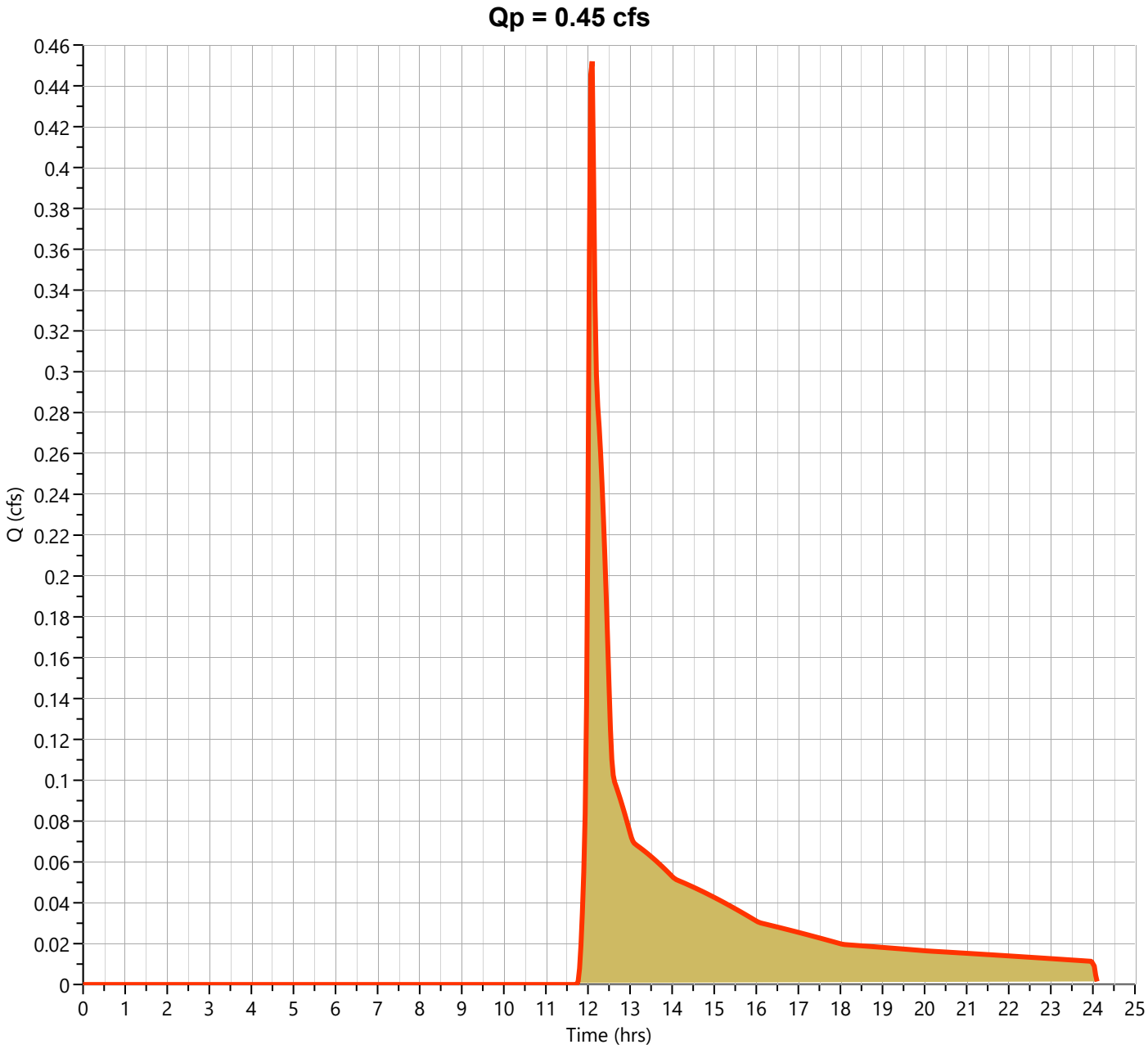
Hydrology Studio v 3.0.0.24

06-15-2022

Pre D

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.452 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 1,793 cuft
Drainage Area	= 0.604 ac	Curve Number	= 54
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 4.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

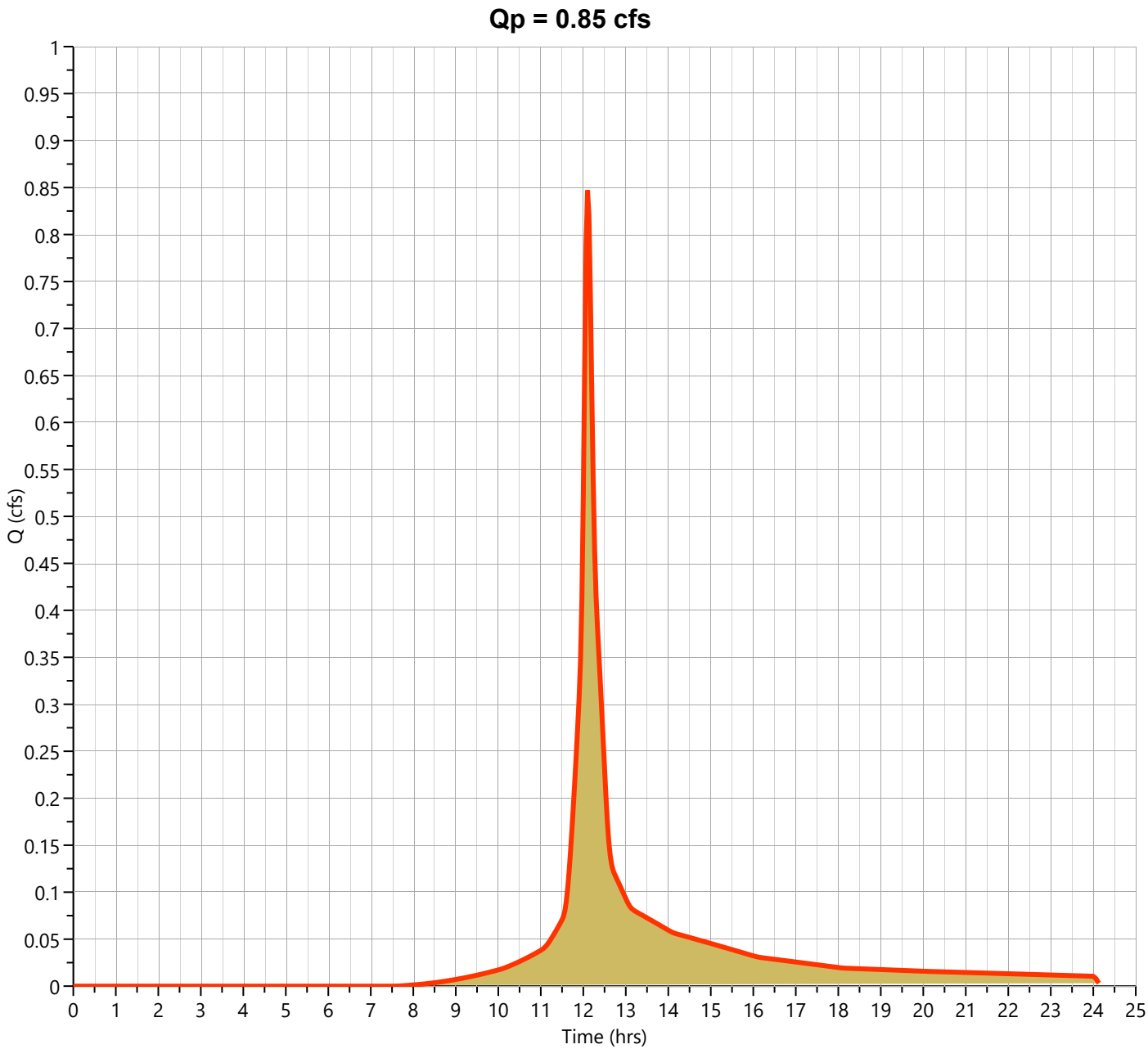
Hydrology Studio v 3.0.0.24

06-15-2022

Pre E

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.847 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 2,893 cuft
Drainage Area	= 0.284 ac	Curve Number	= 80
Tc Method	= User	Time of Conc. (Tc)	= 9.06 min
Total Rainfall	= 4.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

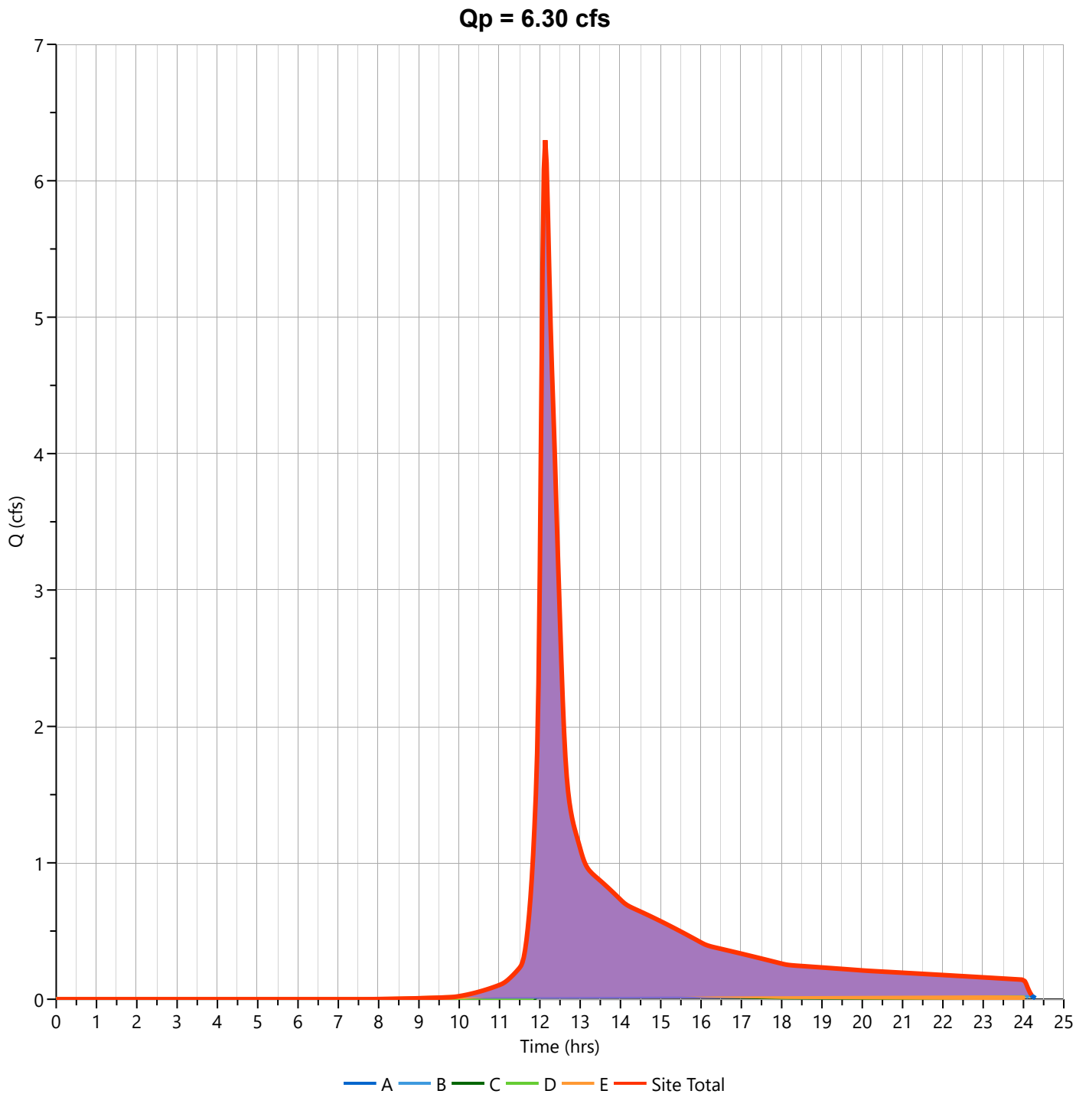
Hydrology Studio v 3.0.0.24

06-15-2022

Pre Site Total

Hyd. No. 6

Hydrograph Type	= Junction	Peak Flow	= 6.297 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 27,482 cuft
Inflow Hydrographs	= 1, 2, 3, 4, 5	Total Contrib. Area	= 5.915 ac



Hydrograph Report

Project Name:

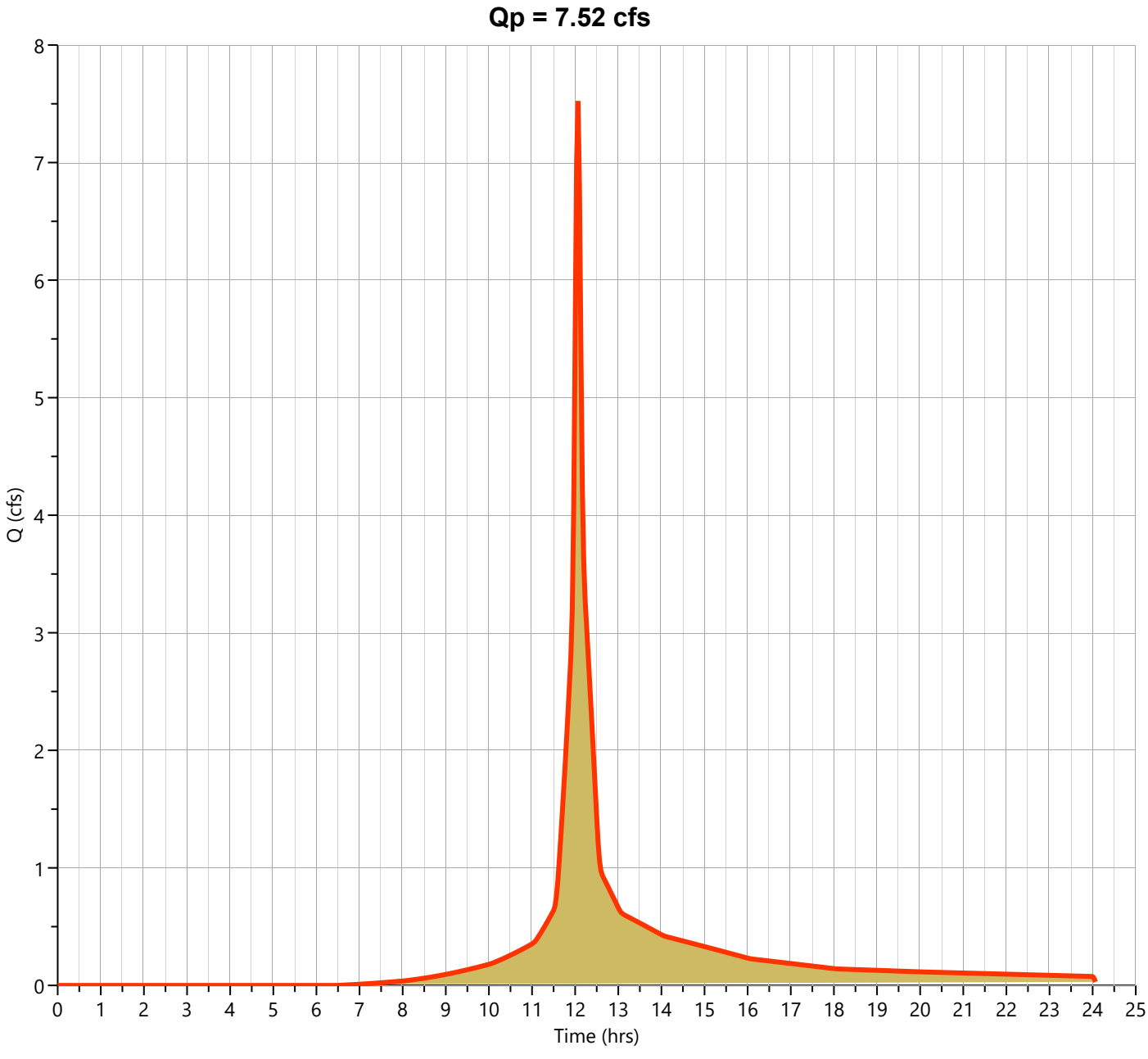
Hydrology Studio v 3.0.0.24

06-15-2022

Post Basin A

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 7.522 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 22,658 cuft
Drainage Area	= 2.107 ac	Curve Number	= 83.8
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 4.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-15-2022

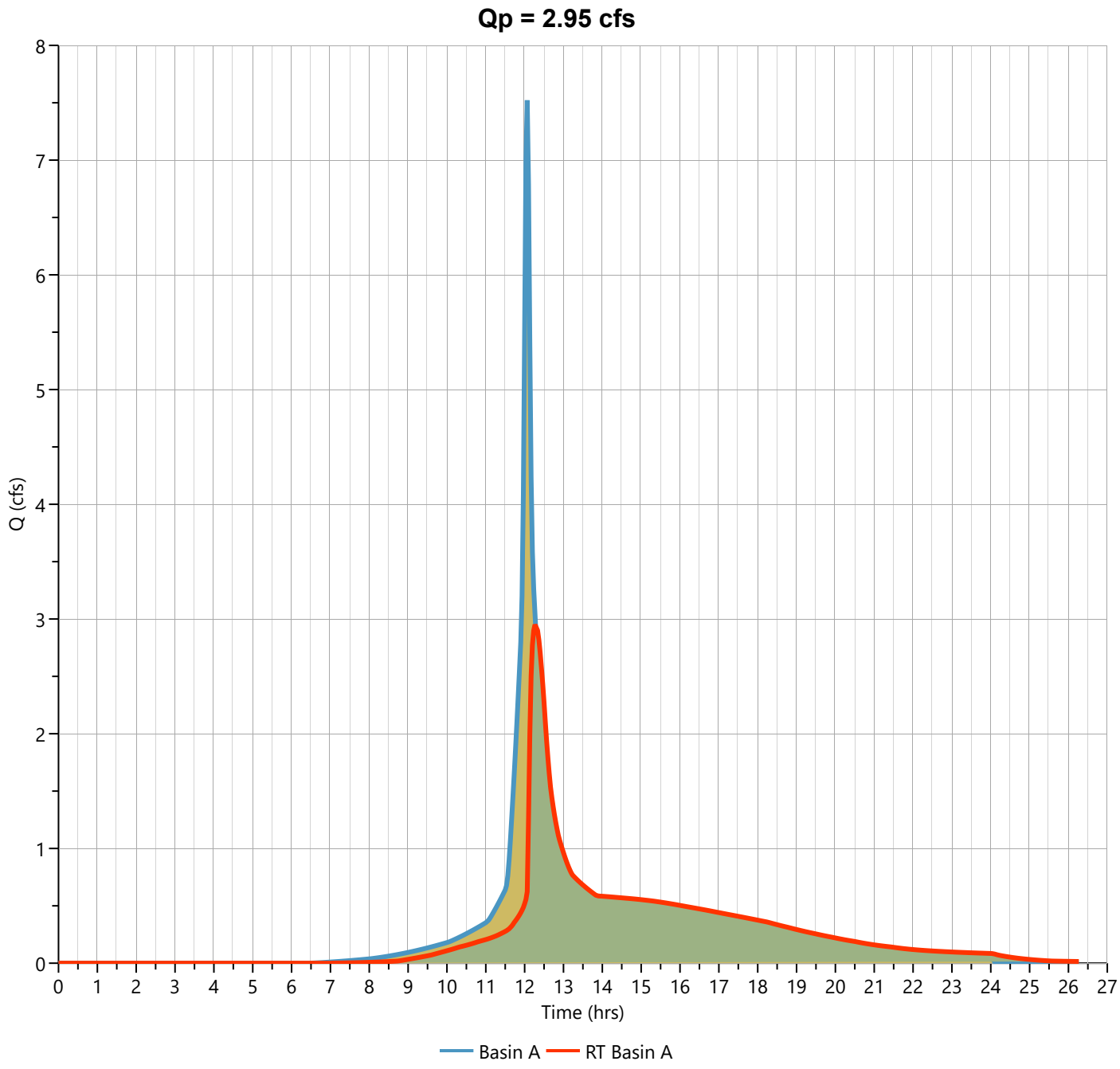
Post RT Basin A

Hyd. No. 8

Hydrograph Type	= Pond Route	Peak Flow	= 2.951 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.27 hrs
Time Interval	= 2 min	Hydrograph Volume	= 22,647 cuft
Inflow Hydrograph	= 7 - Basin A	Max. Elevation	= 483.86 ft
Pond Name	= Basin A	Max. Storage	= 7,540 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 1.52 hrs



Hydrograph Report

Project Name:

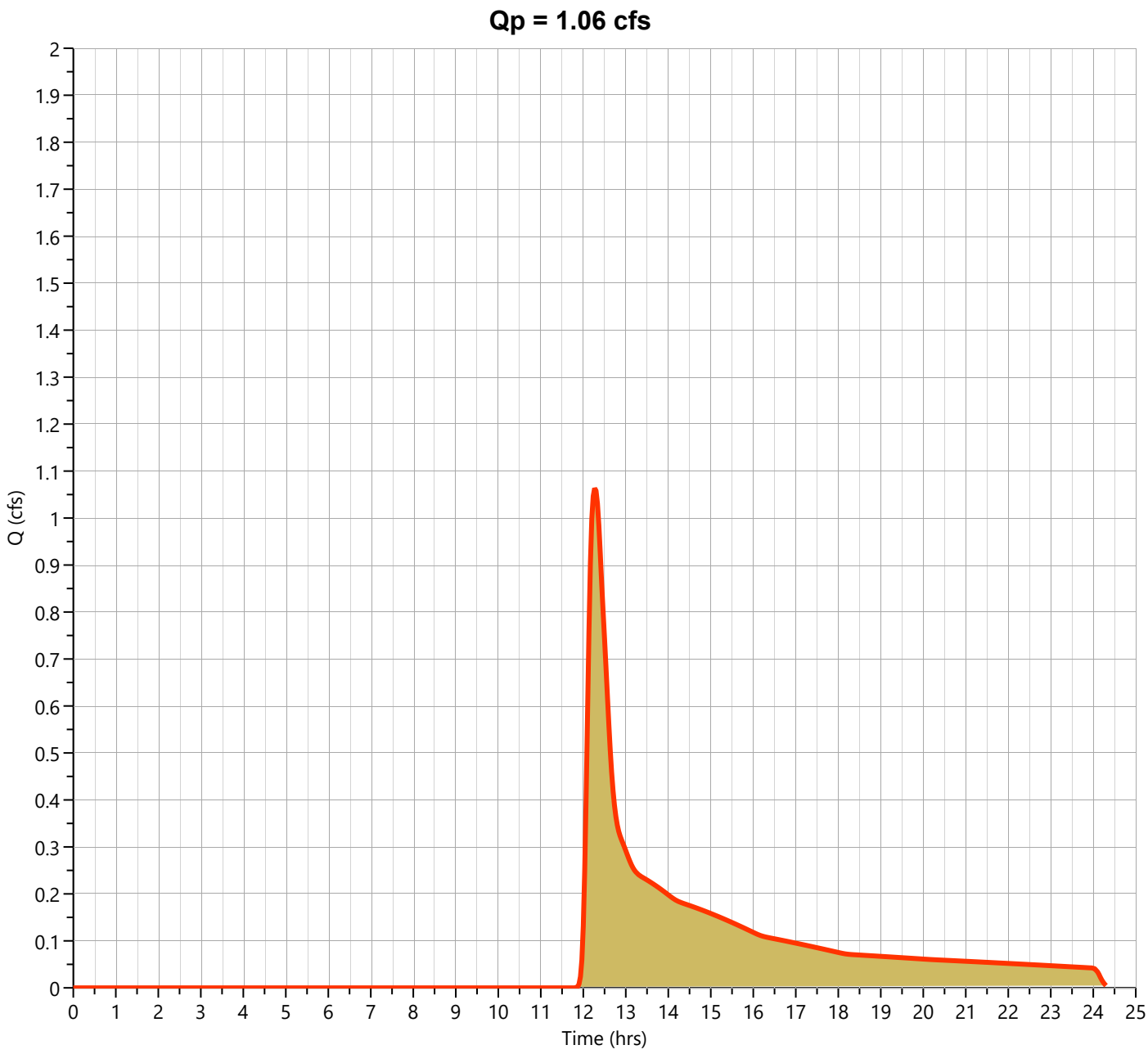
Hydrology Studio v 3.0.0.24

06-15-2022

Post A

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.063 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.27 hrs
Time Interval	= 2 min	Runoff Volume	= 6,158 cuft
Drainage Area	= 2.343 ac	Curve Number	= 51.7
Tc Method	= User	Time of Conc. (Tc)	= 14.55 min
Total Rainfall	= 4.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

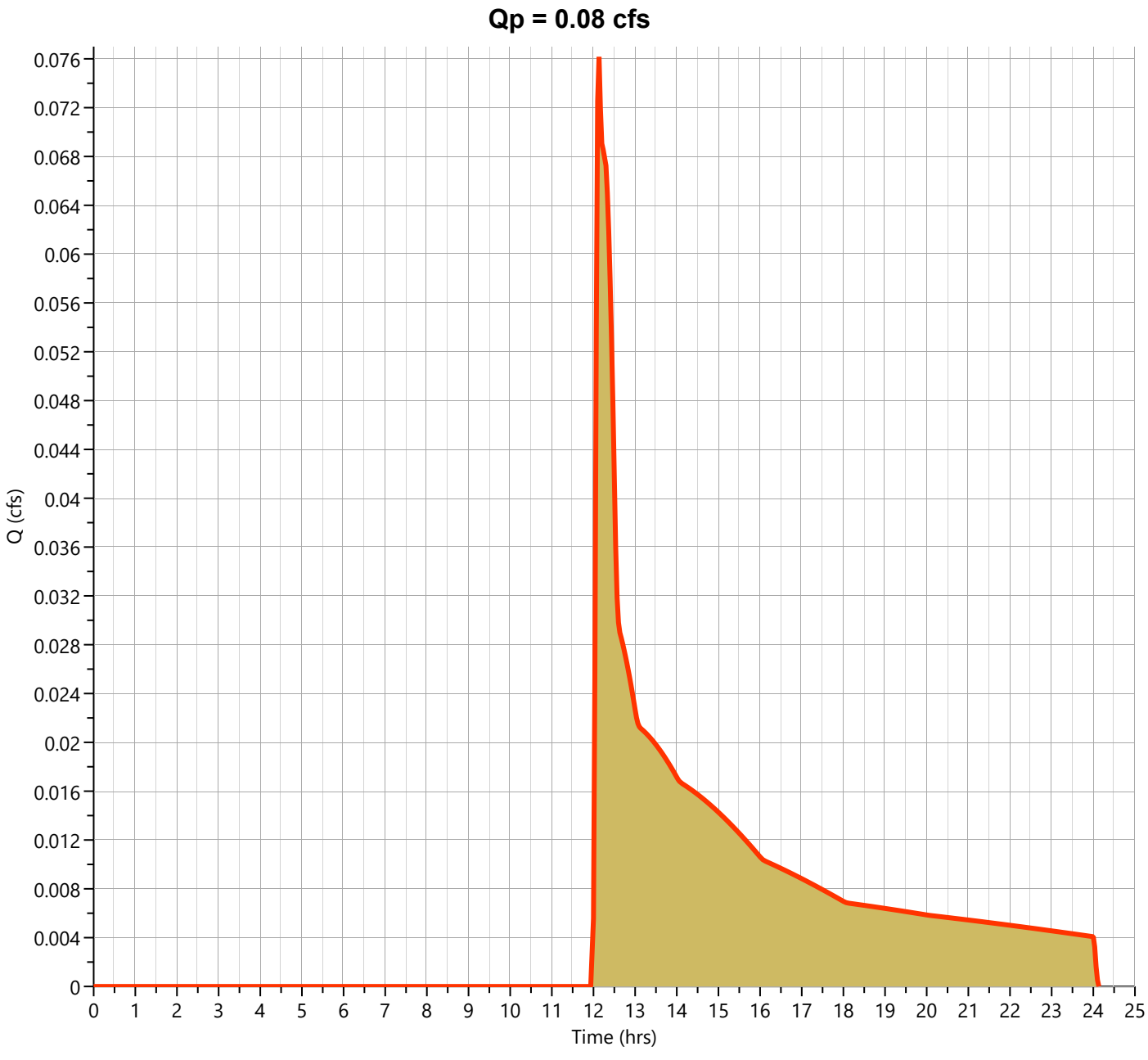
Hydrology Studio v 3.0.0.24

06-15-2022

Post B

Hyd. No. 10

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.076 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 511 cuft
Drainage Area	= 0.299 ac	Curve Number	= 47
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 4.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

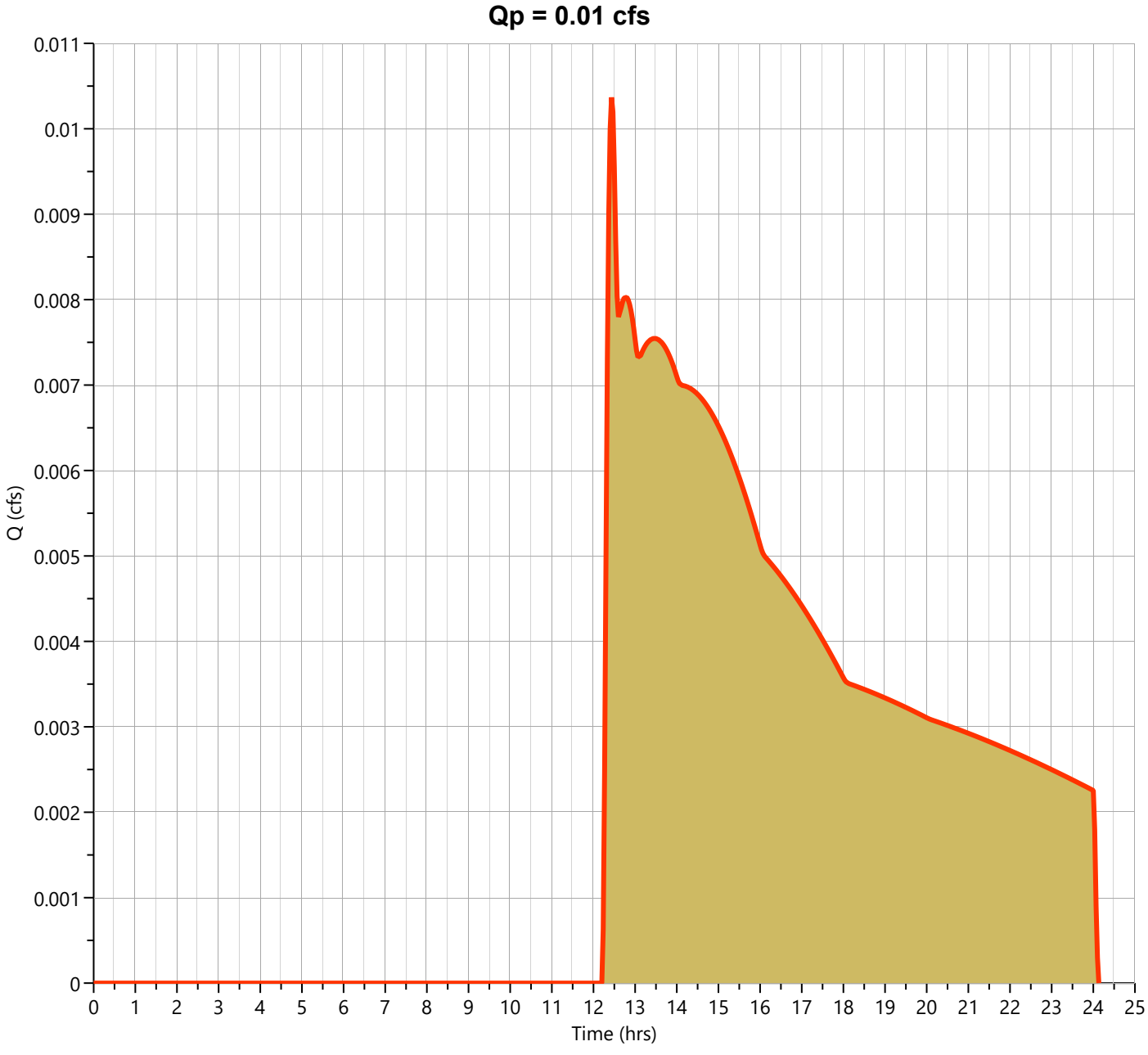
Hydrology Studio v 3.0.0.24

06-15-2022

Post C

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.010 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.43 hrs
Time Interval	= 2 min	Runoff Volume	= 189 cuft
Drainage Area	= 0.278 ac	Curve Number	= 39.6
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 4.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

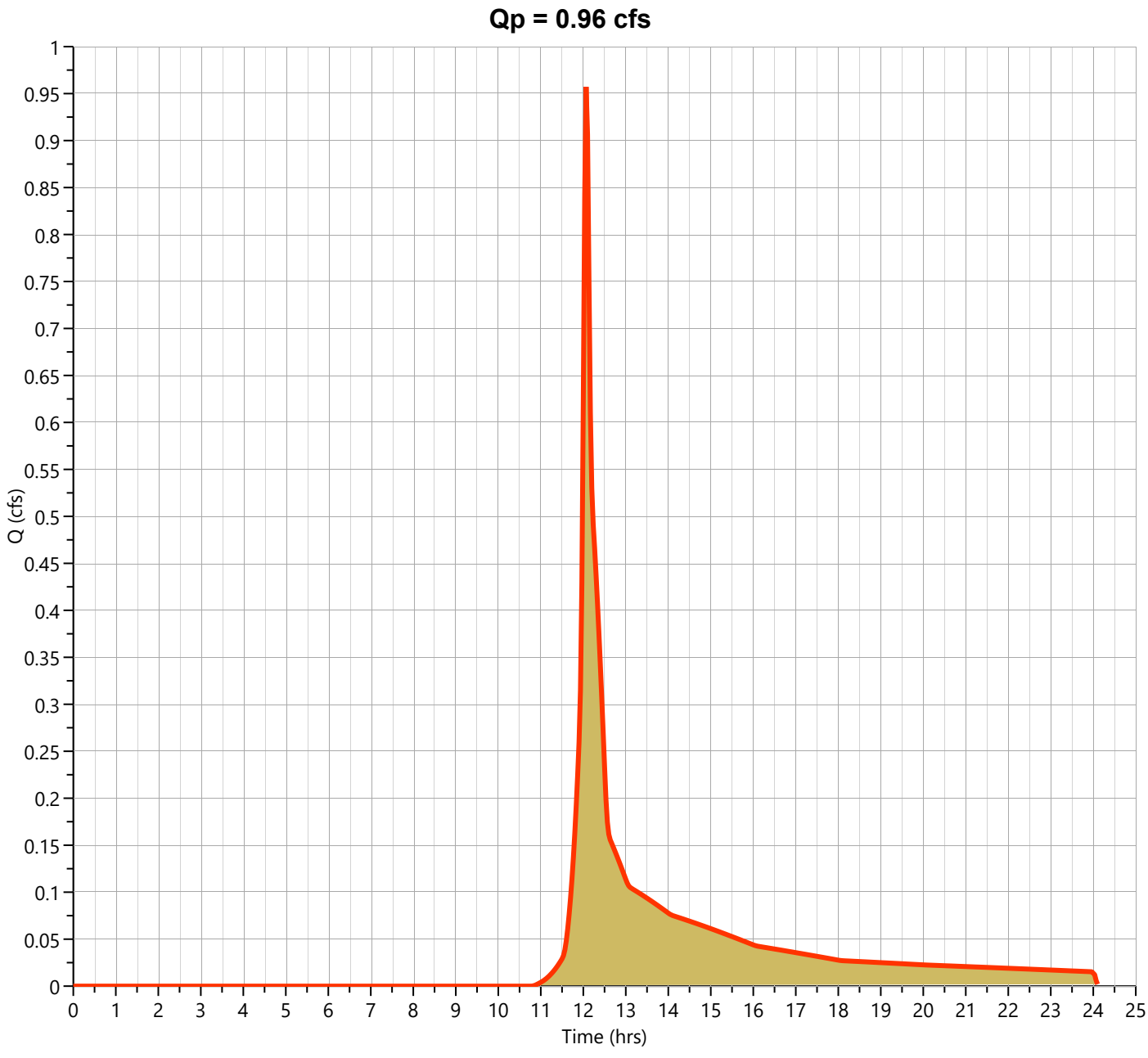
Hydrology Studio v 3.0.0.24

06-15-2022

Post D

Hyd. No. 12

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.957 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 3,058 cuft
Drainage Area	= 0.604 ac	Curve Number	= 63.6
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 4.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

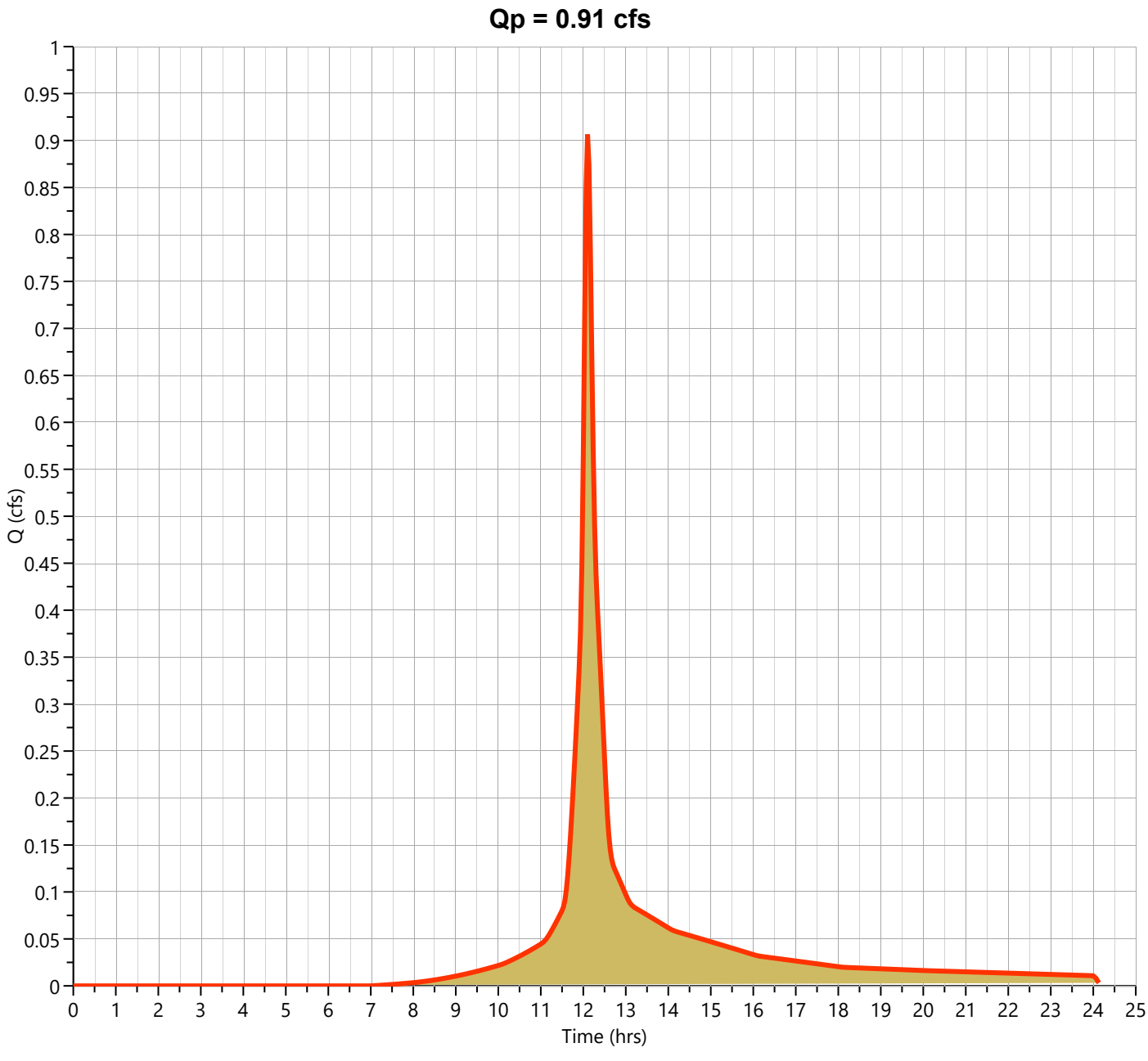
Hydrology Studio v 3.0.0.24

06-15-2022

Post E

Hyd. No. 13

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.906 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 3,101 cuft
Drainage Area	= 0.284 ac	Curve Number	= 82.2
Tc Method	= User	Time of Conc. (Tc)	= 9.06 min
Total Rainfall	= 4.90 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

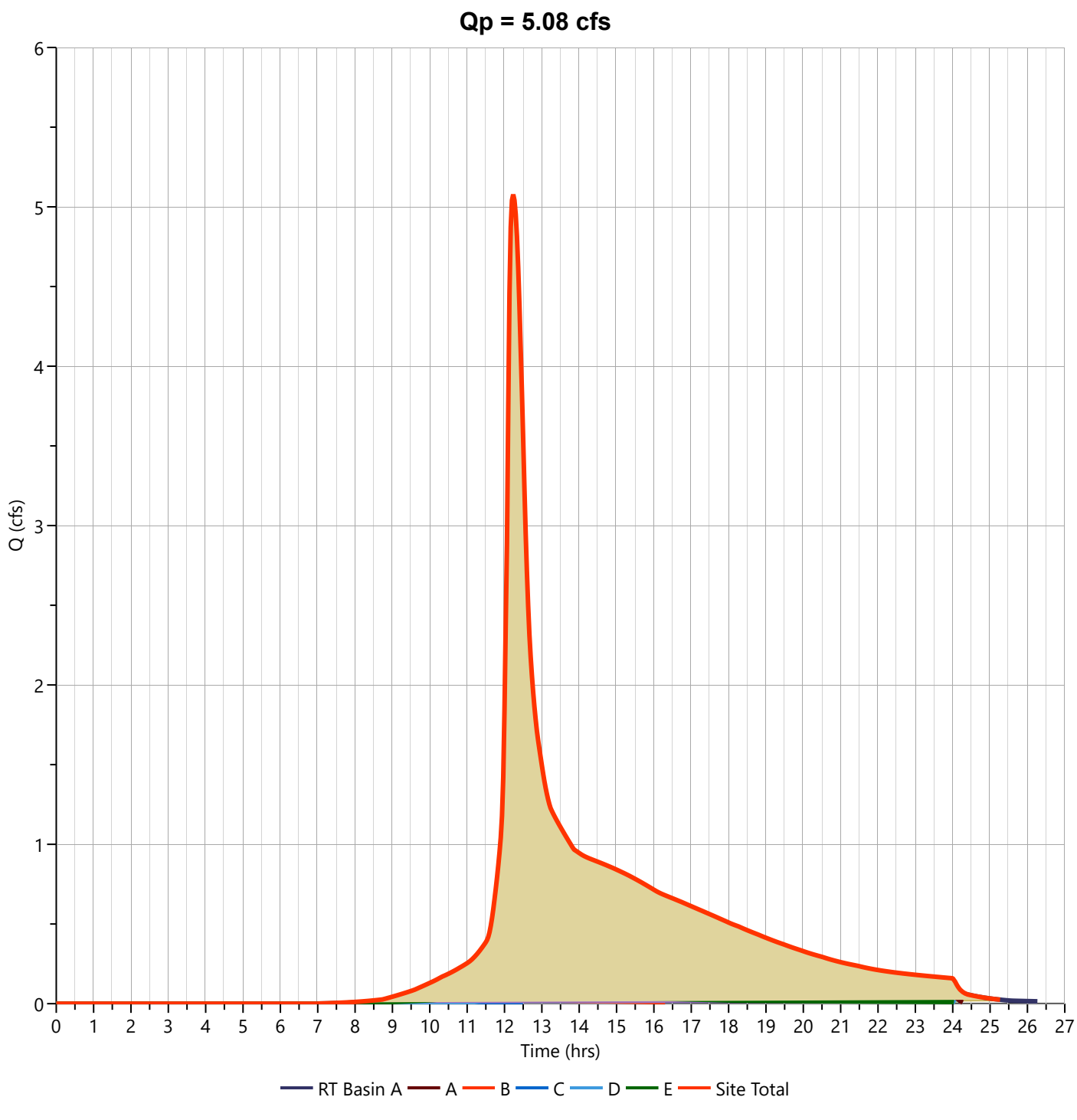
Hydrology Studio v 3.0.0.24

06-15-2022

Post Site Total

Hyd. No. 14

Hydrograph Type	= Junction	Peak Flow	= 5.077 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.23 hrs
Time Interval	= 2 min	Hydrograph Volume	= 35,666 cuft
Inflow Hydrographs	= 8, 9, 10, 11, 12, 13	Total Contrib. Area	= 3.808 ac



Hydrograph Report

Project Name:

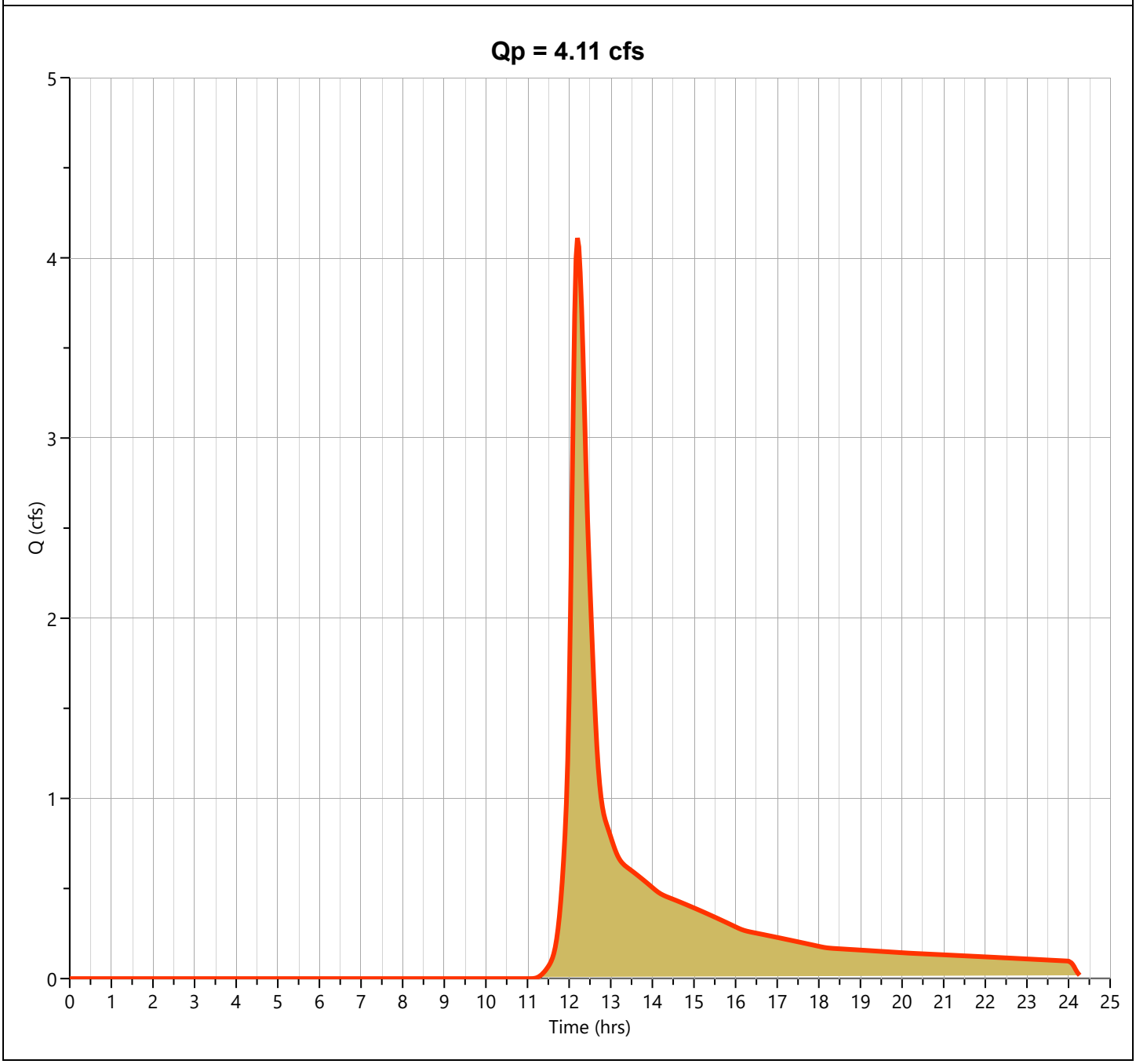
Hydrology Studio v 3.0.0.24

06-15-2022

Pre A

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.110 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Runoff Volume	= 18,353 cuft
Drainage Area	= 3.135 ac	Curve Number	= 56.5
Tc Method	= User	Time of Conc. (Tc)	= 14.55 min
Total Rainfall	= 6.03 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

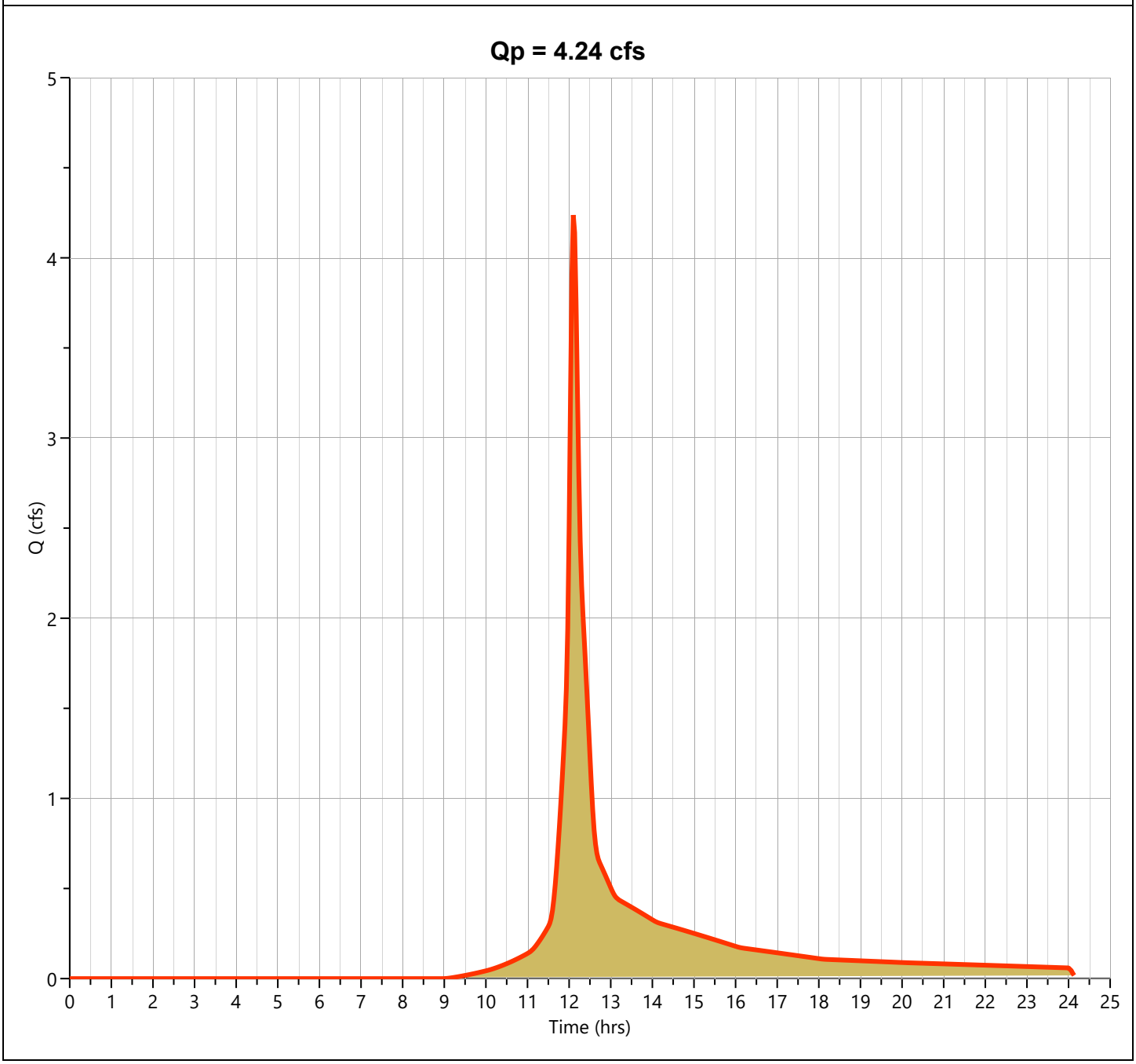
Hydrology Studio v 3.0.0.24

06-15-2022

Pre B

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.237 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 14,578 cuft
Drainage Area	= 1.429 ac	Curve Number	= 69.8
Tc Method	= User	Time of Conc. (Tc)	= 9.61 min
Total Rainfall	= 6.03 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

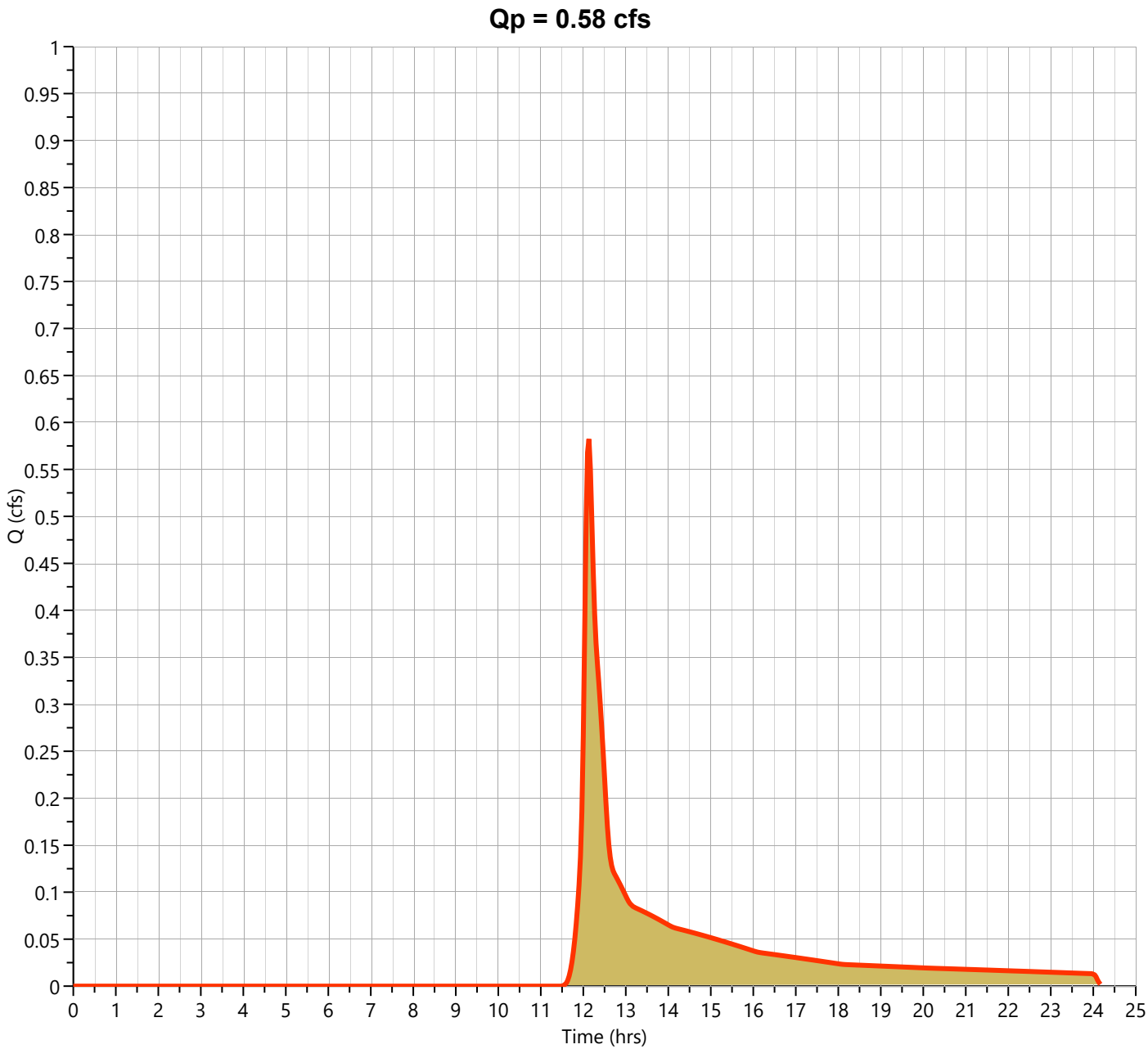
Hydrology Studio v 3.0.0.24

06-15-2022

Pre C

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.582 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 2,320 cuft
Drainage Area	= 0.463 ac	Curve Number	= 53
Tc Method	= User	Time of Conc. (Tc)	= 9.78 min
Total Rainfall	= 6.03 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

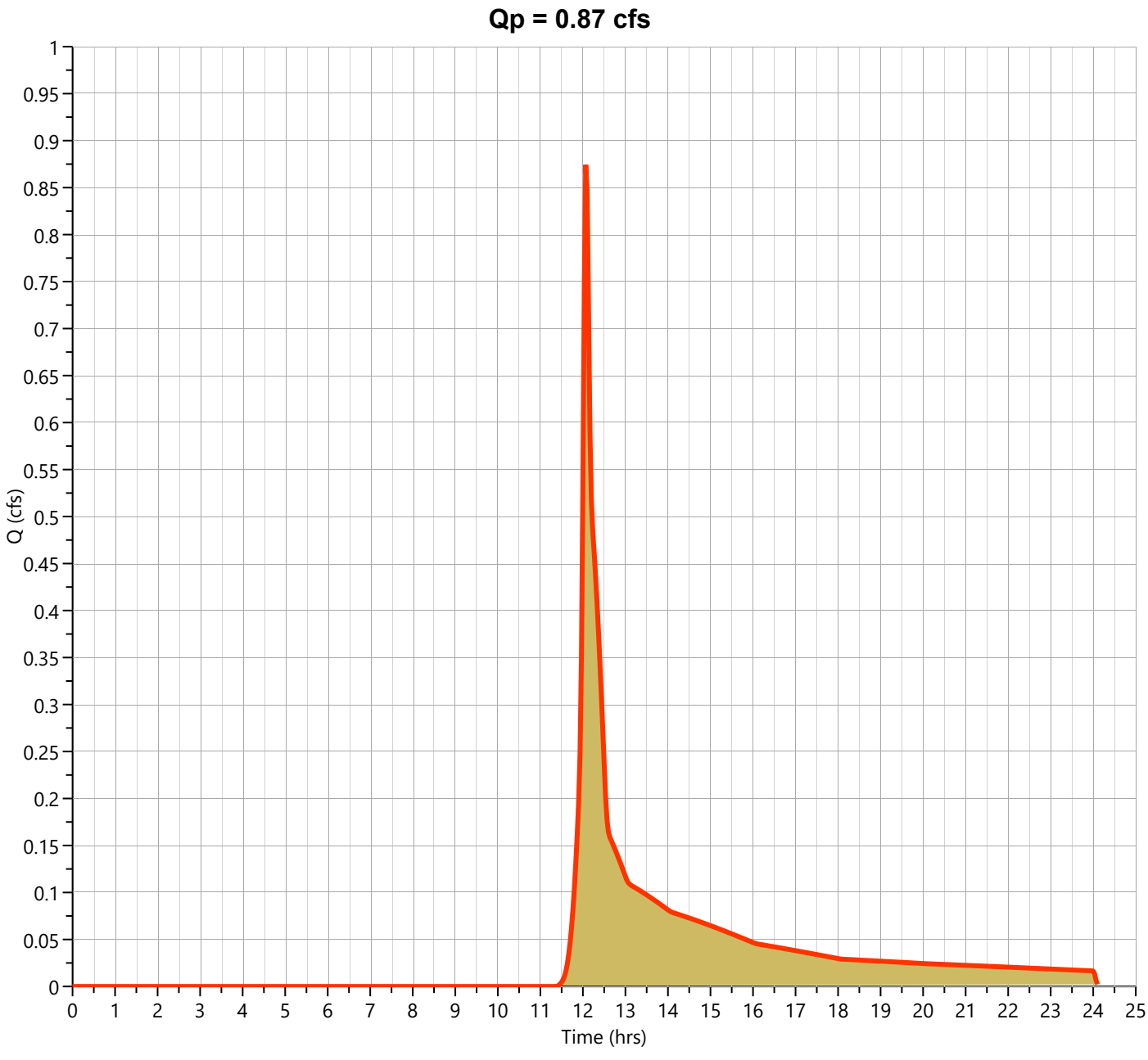
Hydrology Studio v 3.0.0.24

06-15-2022

Pre D

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.874 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 2,995 cuft
Drainage Area	= 0.604 ac	Curve Number	= 54
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 6.03 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

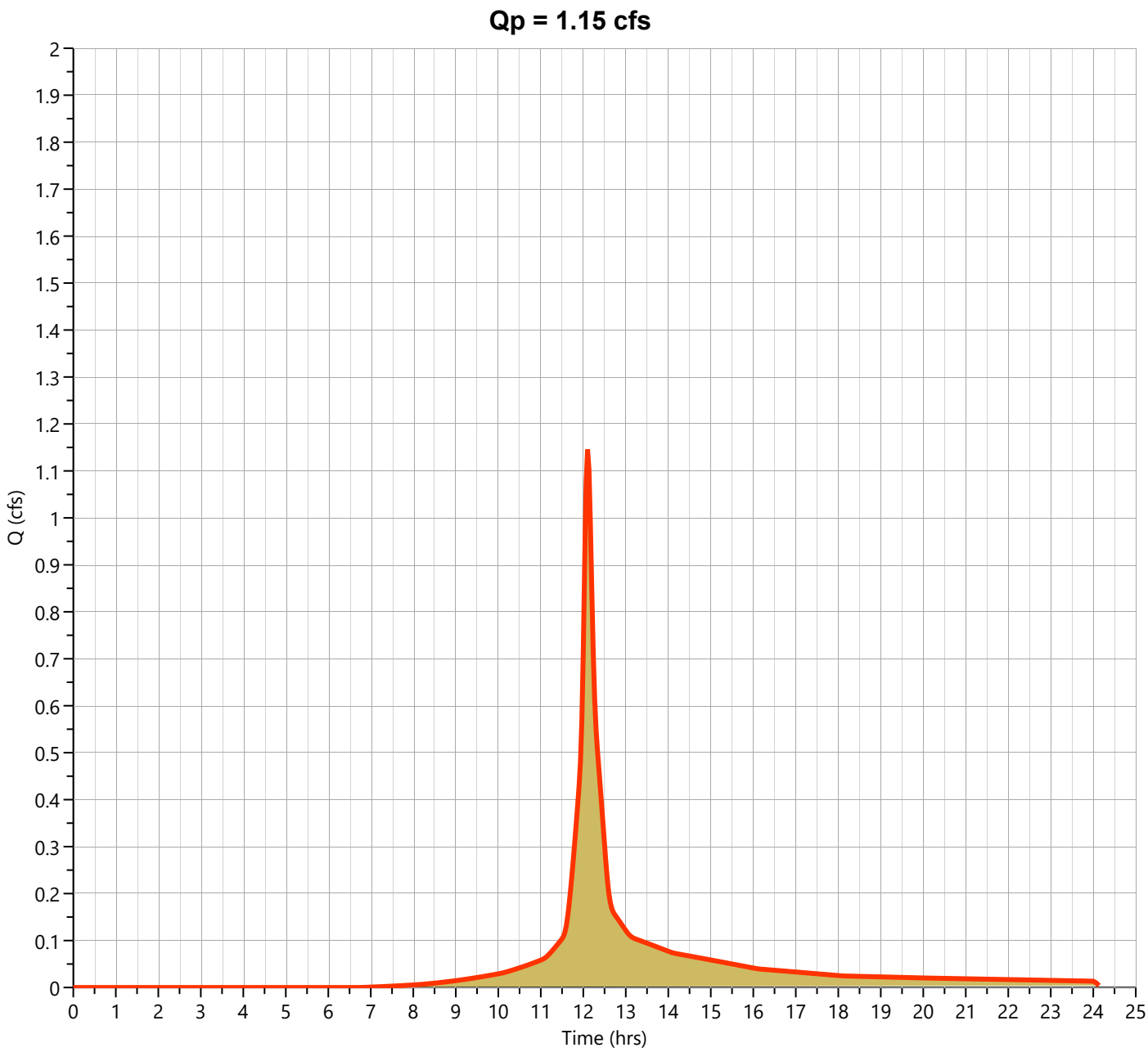
Hydrology Studio v 3.0.0.24

06-15-2022

Pre E

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.146 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 3,926 cuft
Drainage Area	= 0.284 ac	Curve Number	= 80
Tc Method	= User	Time of Conc. (Tc)	= 9.06 min
Total Rainfall	= 6.03 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

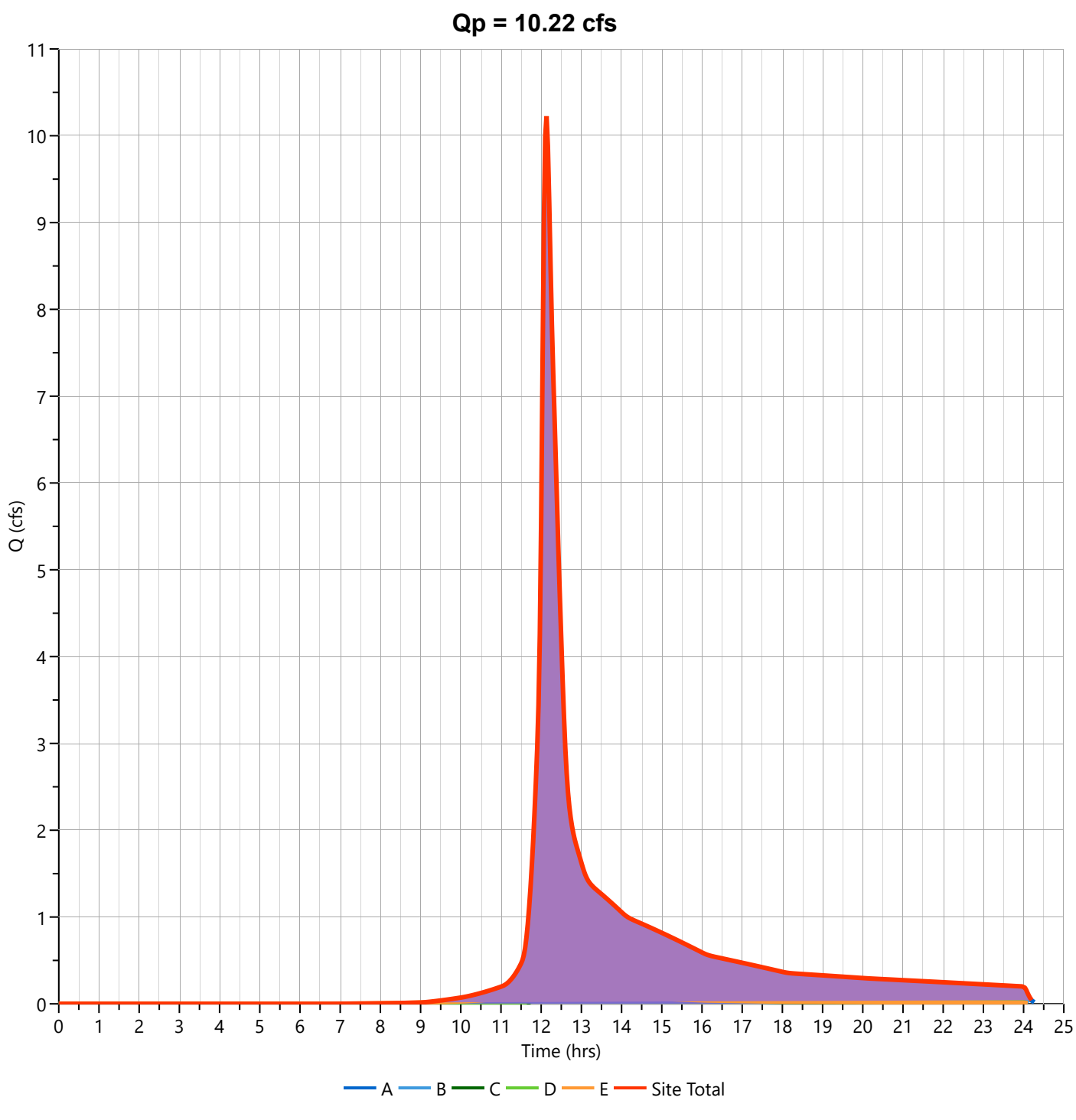
Hydrology Studio v 3.0.0.24

06-15-2022

Pre Site Total

Hyd. No. 6

Hydrograph Type	= Junction	Peak Flow	= 10.22 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 42,172 cuft
Inflow Hydrographs	= 1, 2, 3, 4, 5	Total Contrib. Area	= 5.915 ac



Hydrograph Report

Project Name:

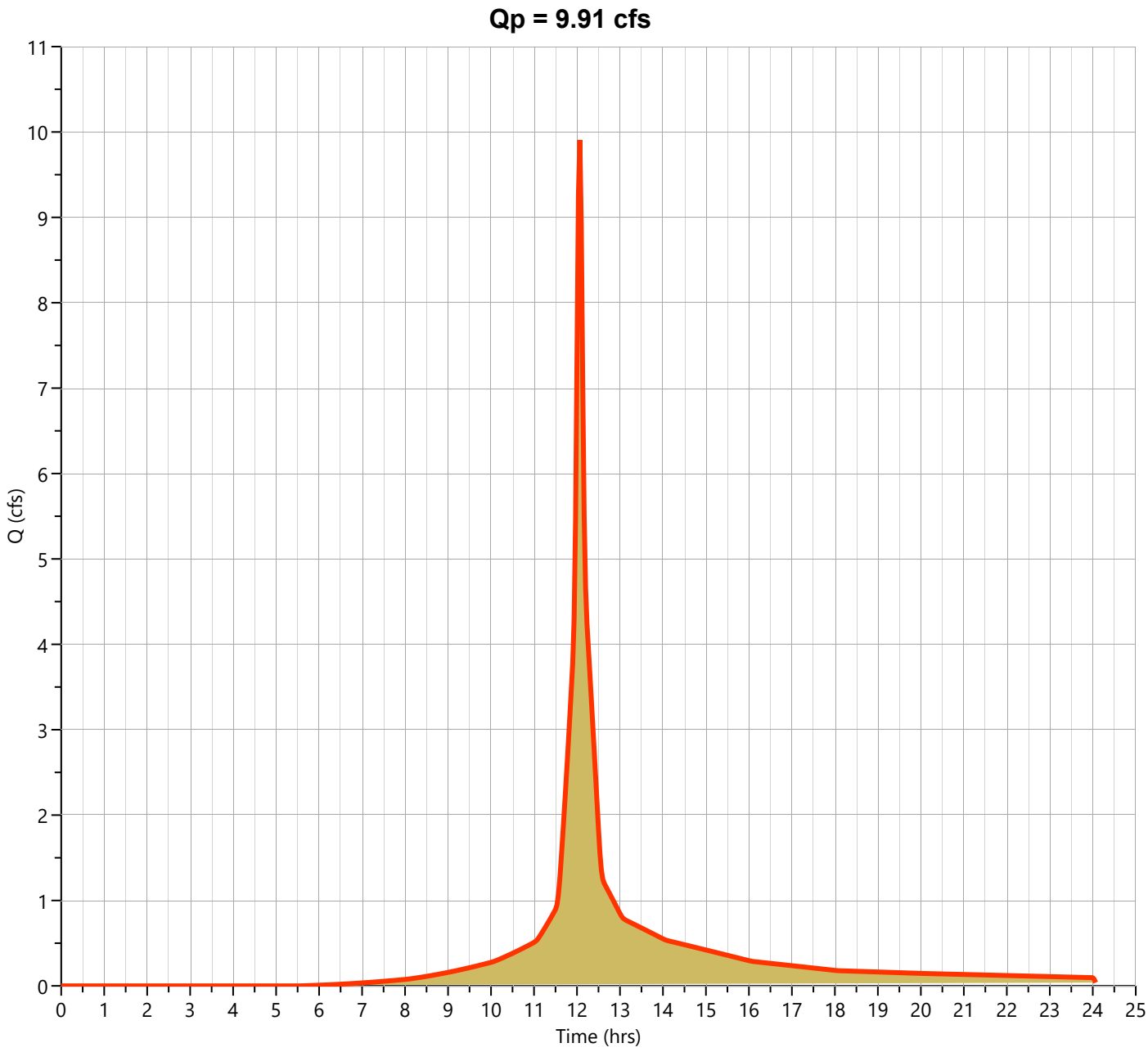
Hydrology Studio v 3.0.0.24

06-15-2022

Post Basin A

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 9.907 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 30,140 cuft
Drainage Area	= 2.107 ac	Curve Number	= 83.8
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 6.03 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-15-2022

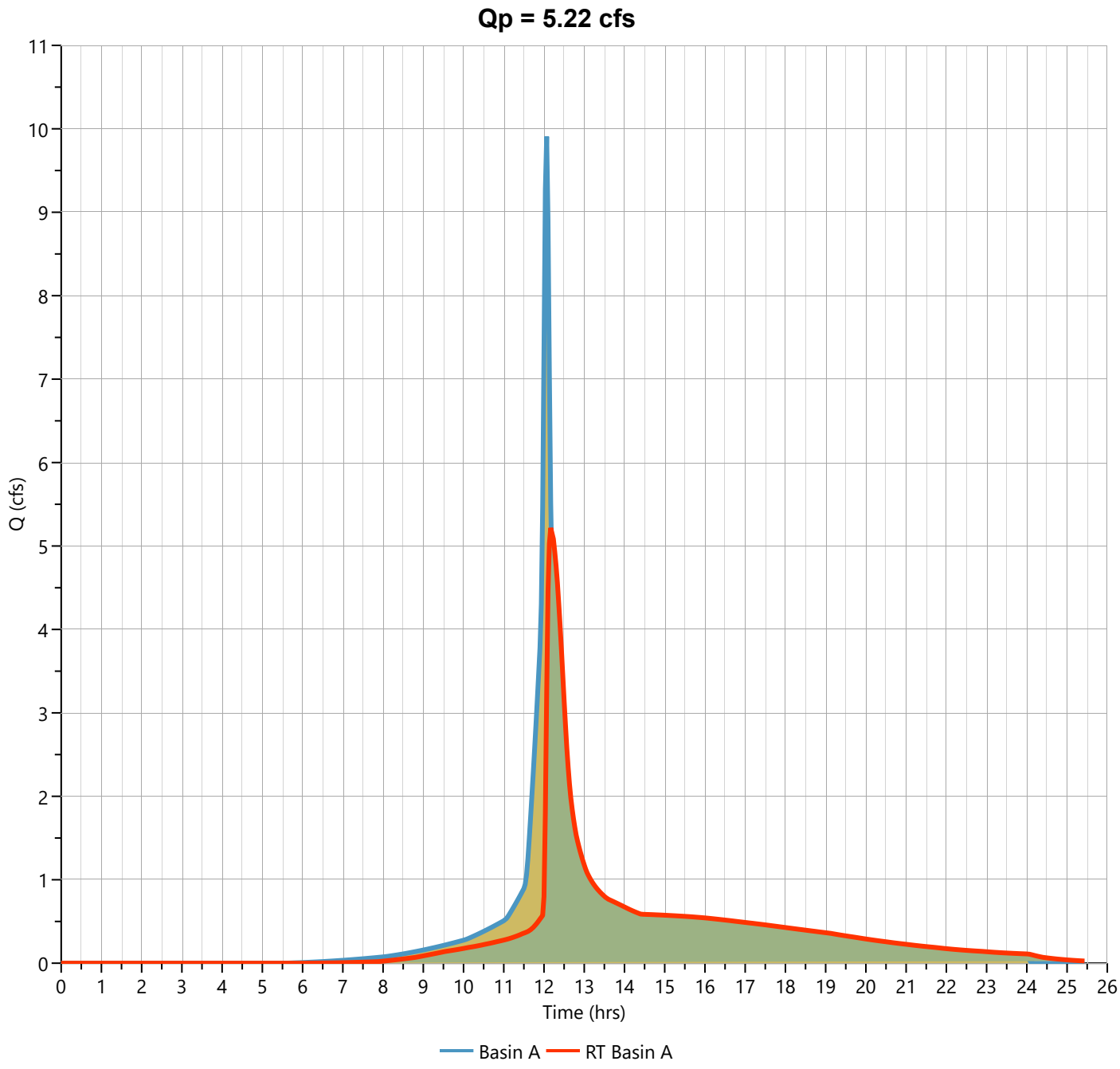
Post RT Basin A

Hyd. No. 8

Hydrograph Type	= Pond Route	Peak Flow	= 5.217 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 30,130 cuft
Inflow Hydrograph	= 7 - Basin A	Max. Elevation	= 484.21 ft
Pond Name	= Basin A	Max. Storage	= 8,890 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 1.38 hrs



Hydrograph Report

Project Name:

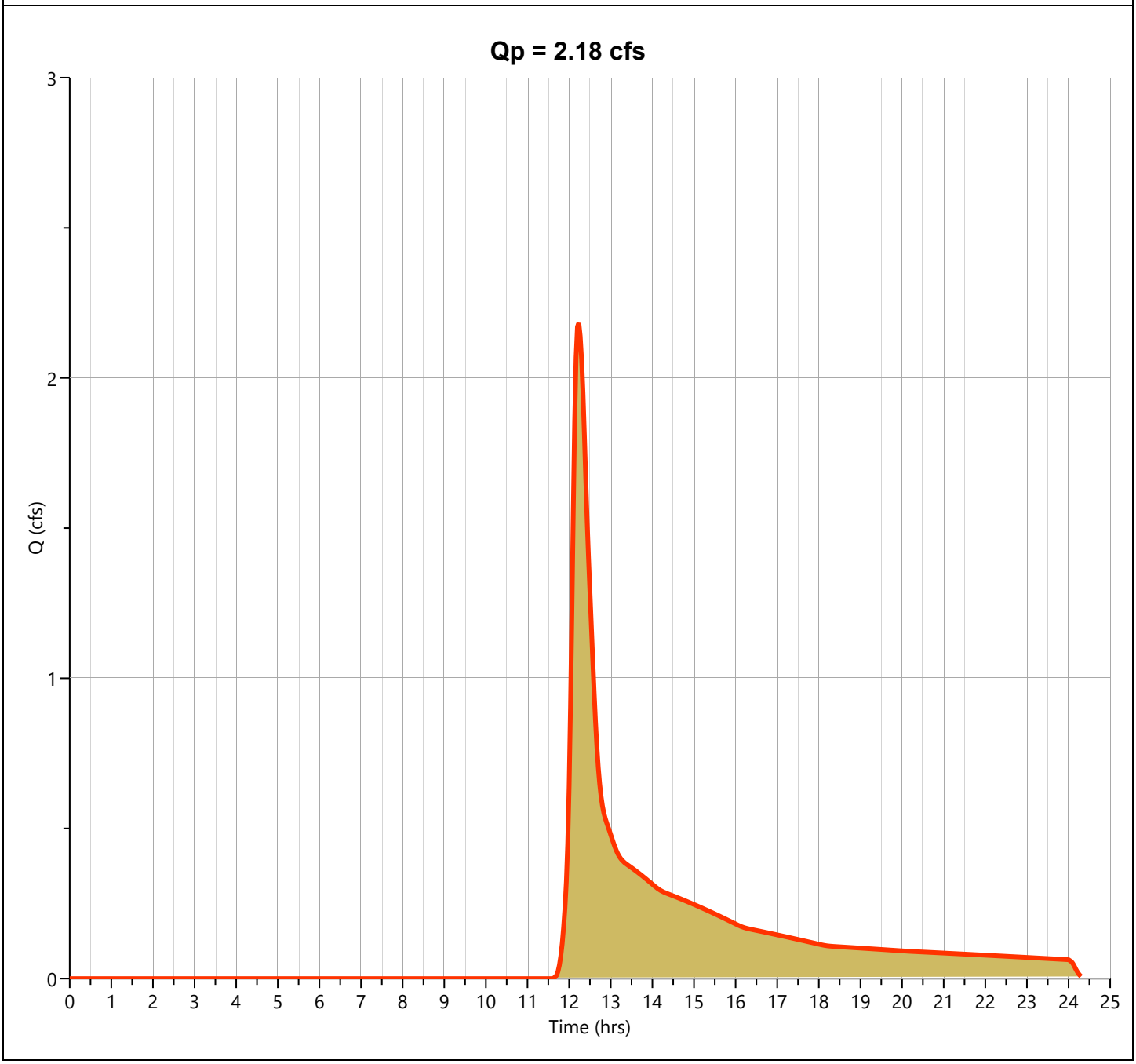
Hydrology Studio v 3.0.0.24

06-15-2022

Post A

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.183 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.23 hrs
Time Interval	= 2 min	Runoff Volume	= 10,635 cuft
Drainage Area	= 2.343 ac	Curve Number	= 51.7
Tc Method	= User	Time of Conc. (Tc)	= 14.55 min
Total Rainfall	= 6.03 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

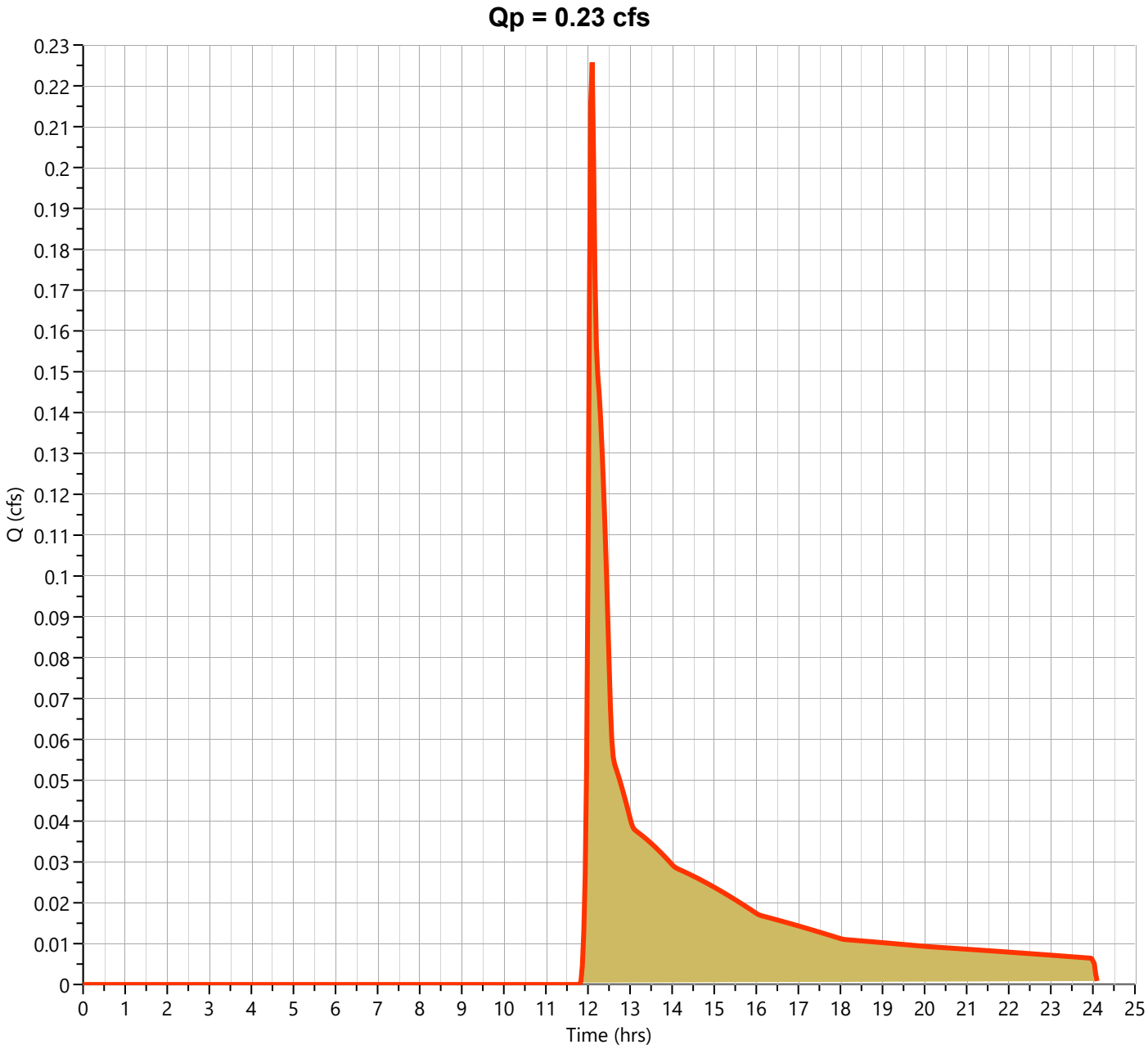
Hydrology Studio v 3.0.0.24

06-15-2022

Post B

Hyd. No. 10

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.226 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 963 cuft
Drainage Area	= 0.299 ac	Curve Number	= 47
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 6.03 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

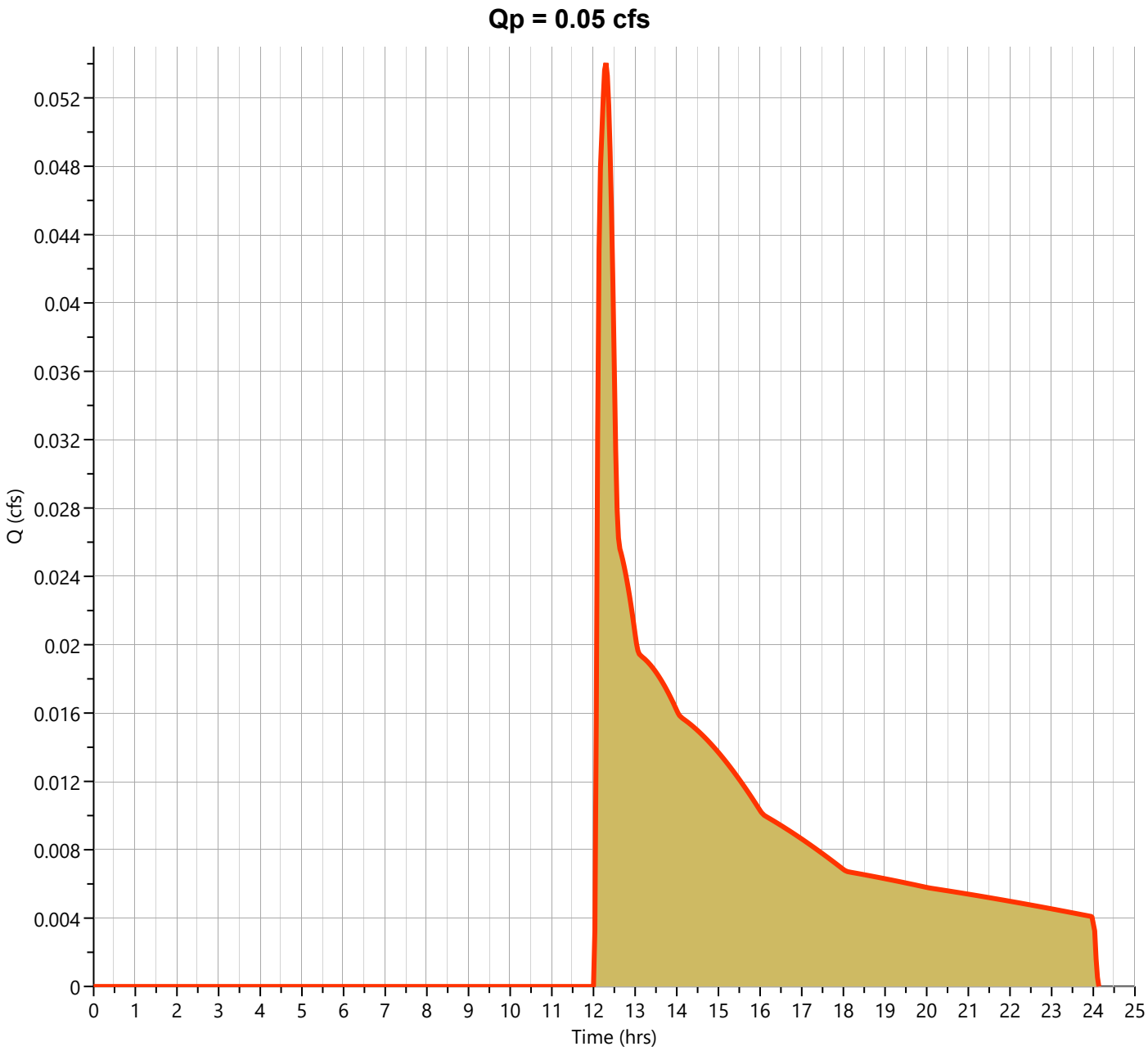
Hydrology Studio v 3.0.0.24

06-15-2022

Post C

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.054 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.30 hrs
Time Interval	= 2 min	Runoff Volume	= 461 cuft
Drainage Area	= 0.278 ac	Curve Number	= 39.6
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 6.03 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

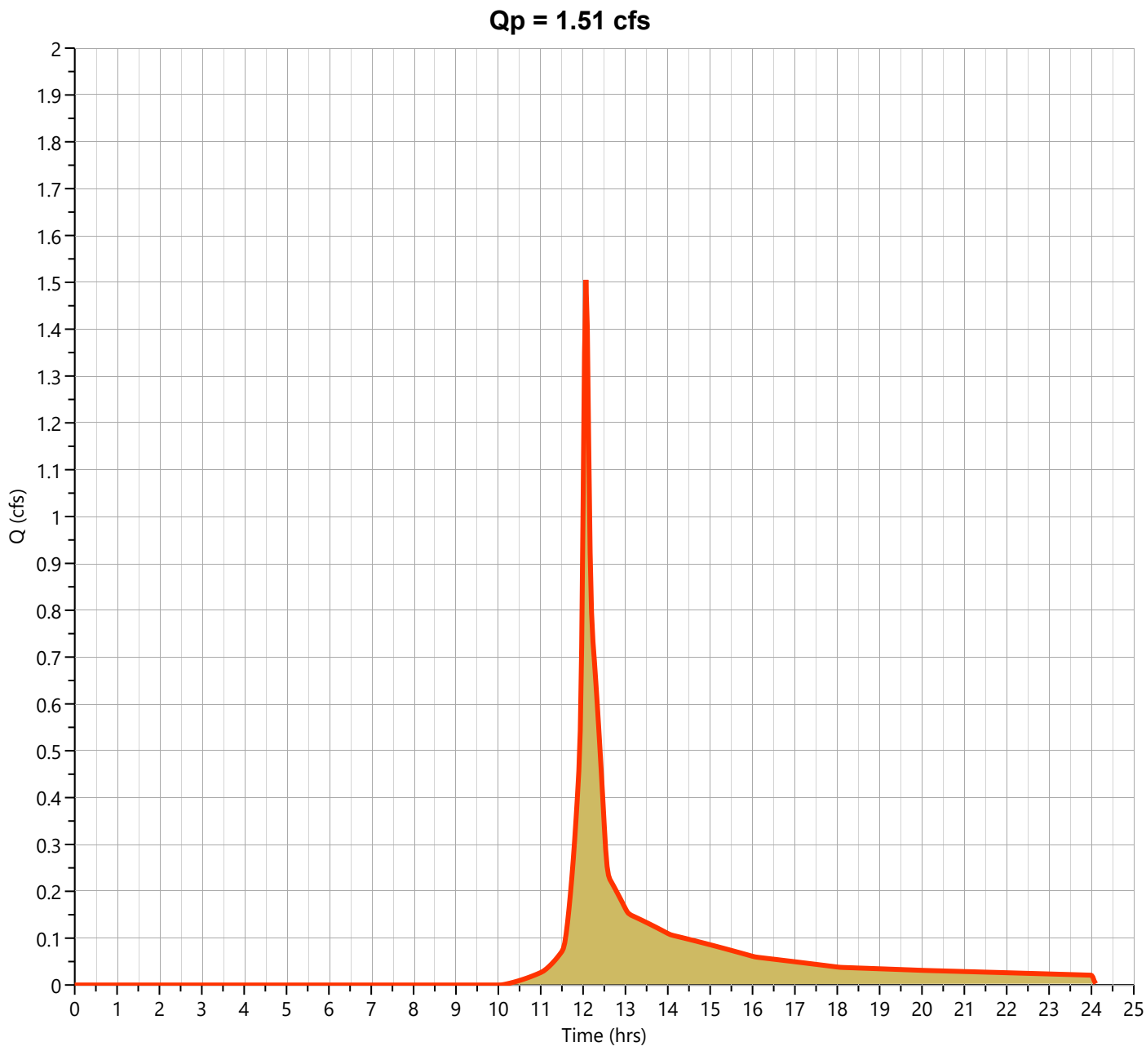
Hydrology Studio v 3.0.0.24

06-15-2022

Post D

Hyd. No. 12

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.505 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 4,624 cuft
Drainage Area	= 0.604 ac	Curve Number	= 63.6
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 6.03 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

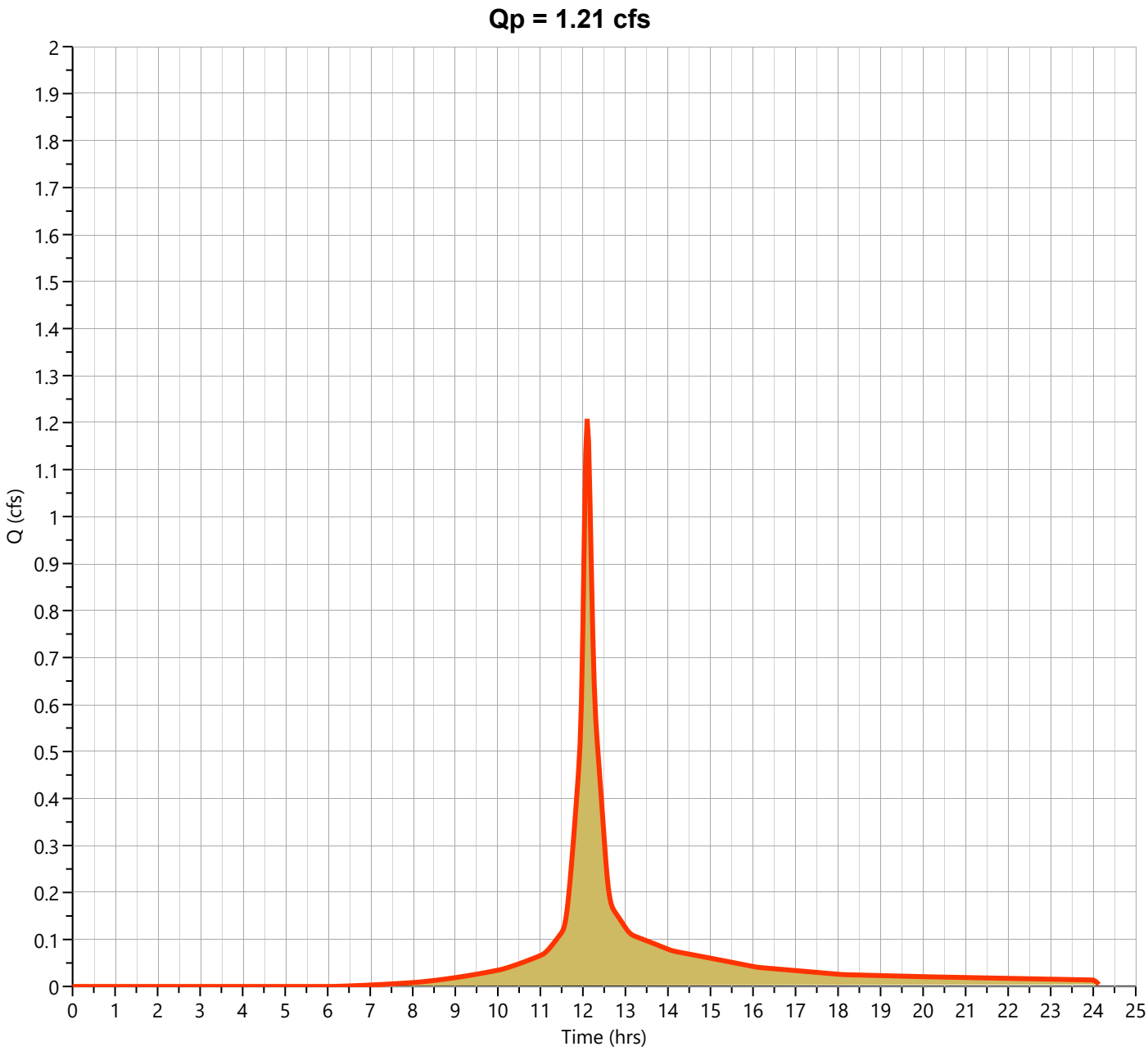
Hydrology Studio v 3.0.0.24

06-15-2022

Post E

Hyd. No. 13

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.208 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 4,160 cuft
Drainage Area	= 0.284 ac	Curve Number	= 82.2
Tc Method	= User	Time of Conc. (Tc)	= 9.06 min
Total Rainfall	= 6.03 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

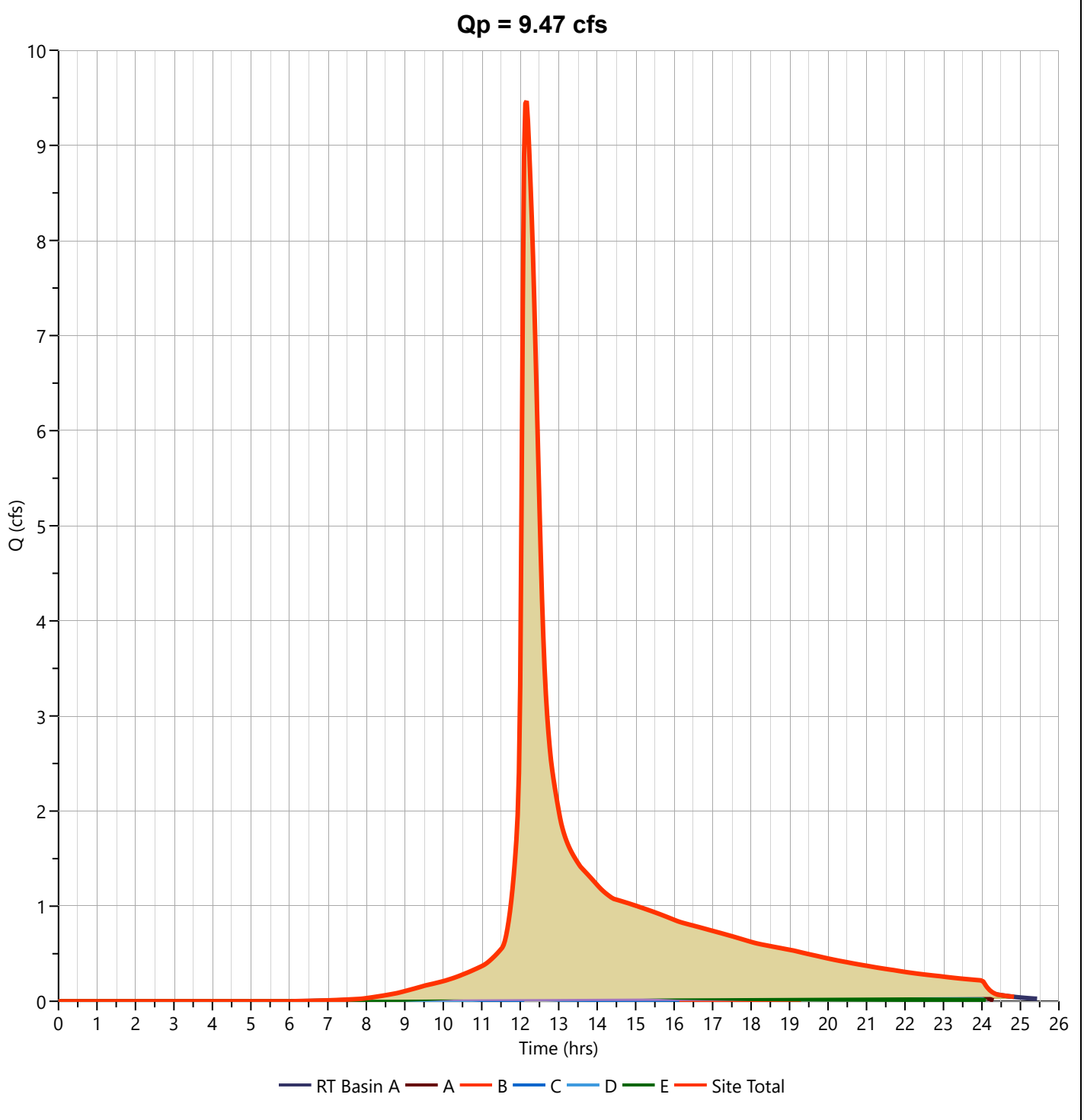
Hydrology Studio v 3.0.0.24

06-15-2022

Post Site Total

Hyd. No. 14

Hydrograph Type	= Junction	Peak Flow	= 9.466 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 50,973 cuft
Inflow Hydrographs	= 8, 9, 10, 11, 12, 13	Total Contrib. Area	= 3.808 ac



Hydrograph Report

Project Name:

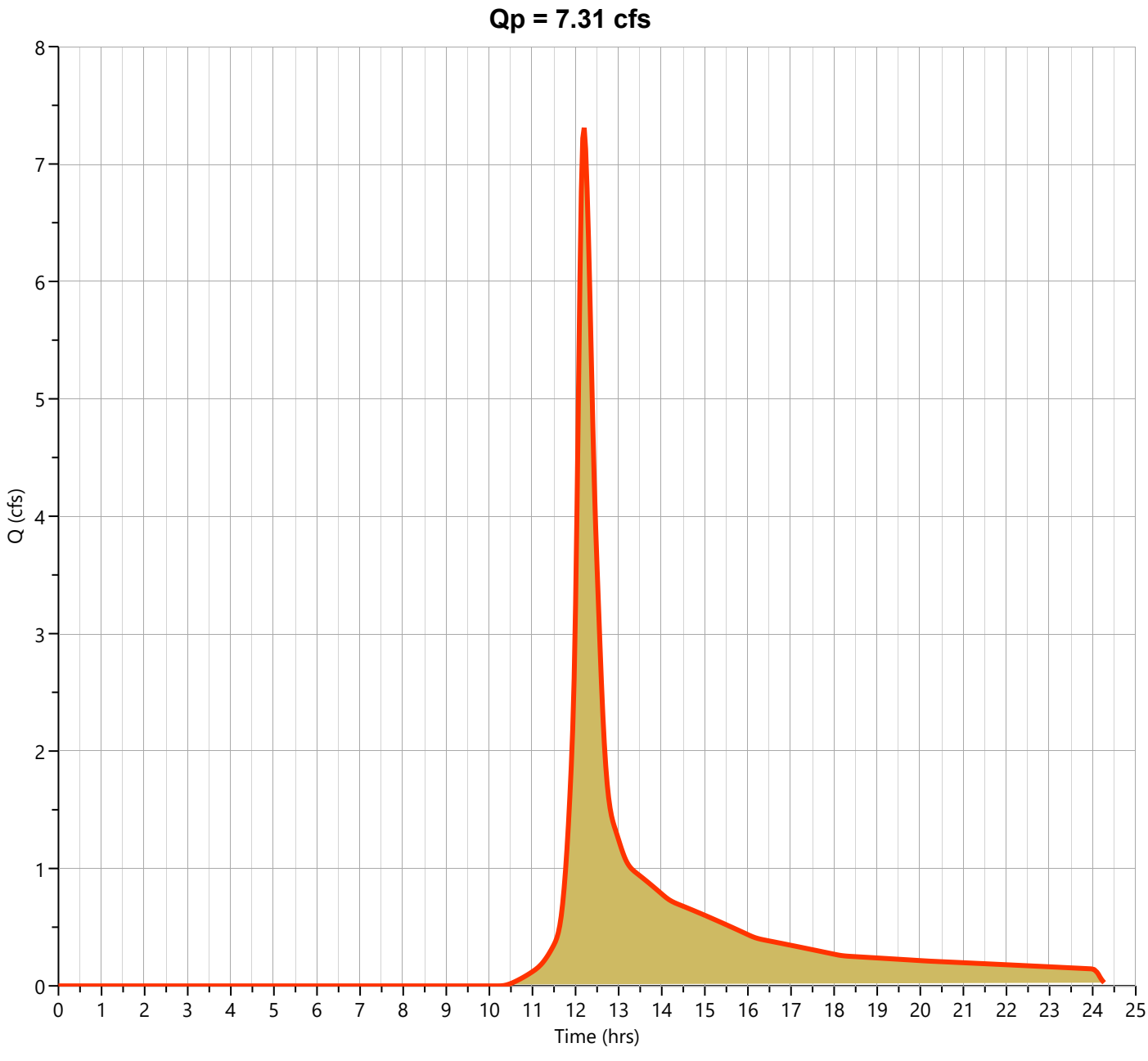
Hydrology Studio v 3.0.0.24

06-15-2022

Pre A

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 7.309 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Runoff Volume	= 30,842 cuft
Drainage Area	= 3.135 ac	Curve Number	= 56.5
Tc Method	= User	Time of Conc. (Tc)	= 14.55 min
Total Rainfall	= 7.76 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

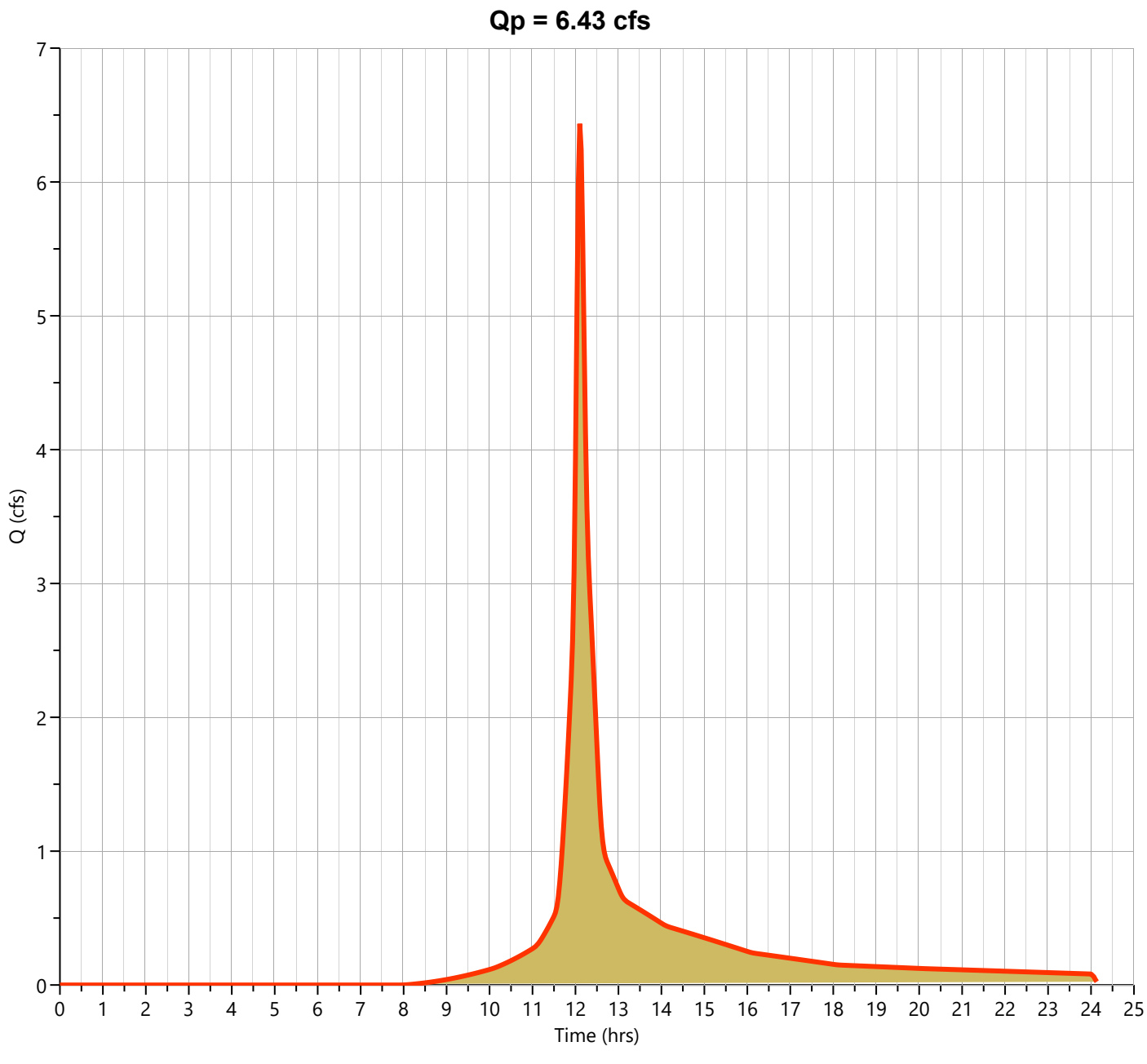
Hydrology Studio v 3.0.0.24

06-15-2022

Pre B

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 6.435 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 21,975 cuft
Drainage Area	= 1.429 ac	Curve Number	= 69.8
Tc Method	= User	Time of Conc. (Tc)	= 9.61 min
Total Rainfall	= 7.76 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

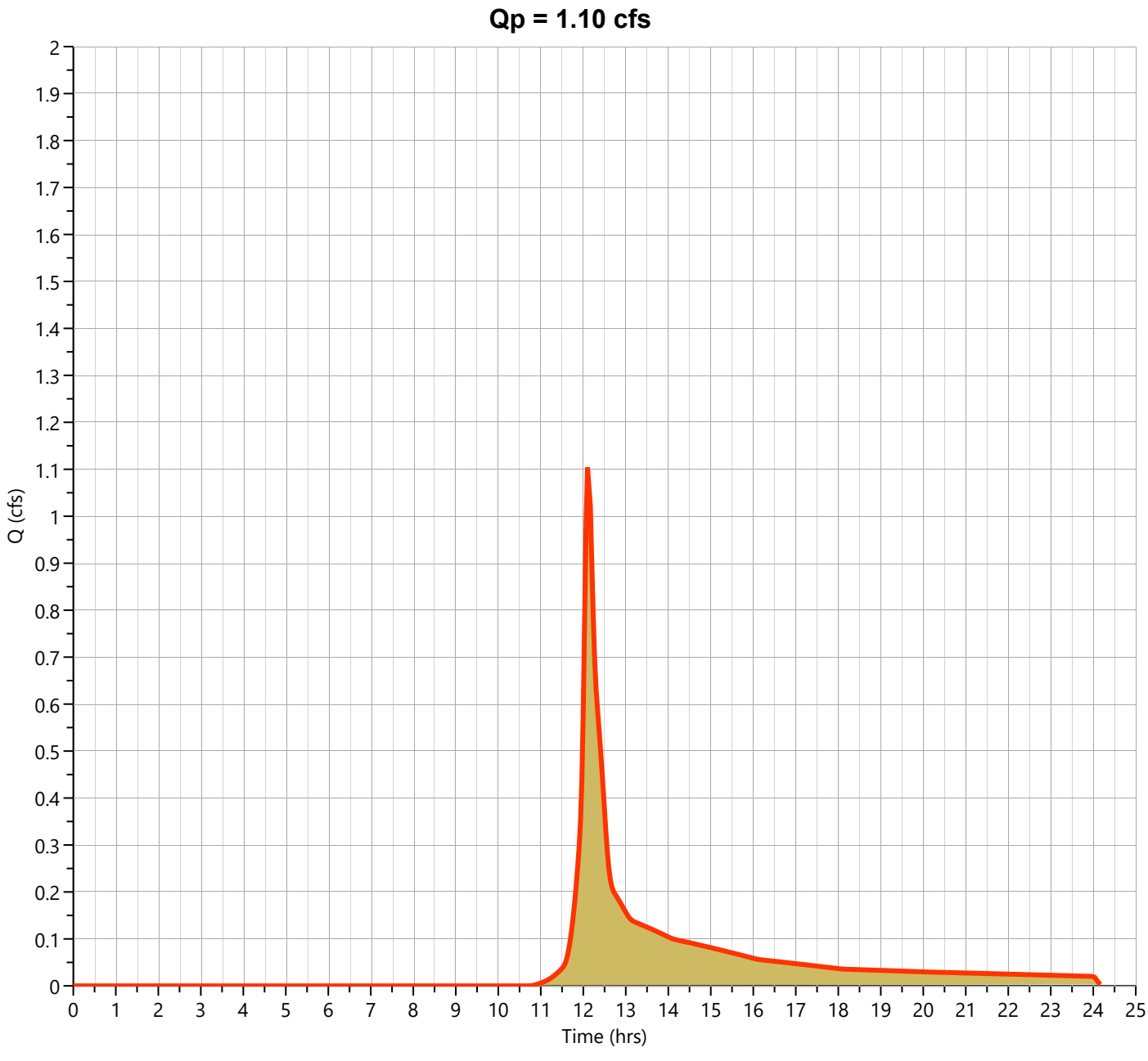
Hydrology Studio v 3.0.0.24

06-15-2022

Pre C

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.104 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 4,055 cuft
Drainage Area	= 0.463 ac	Curve Number	= 53
Tc Method	= User	Time of Conc. (Tc)	= 9.78 min
Total Rainfall	= 7.76 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

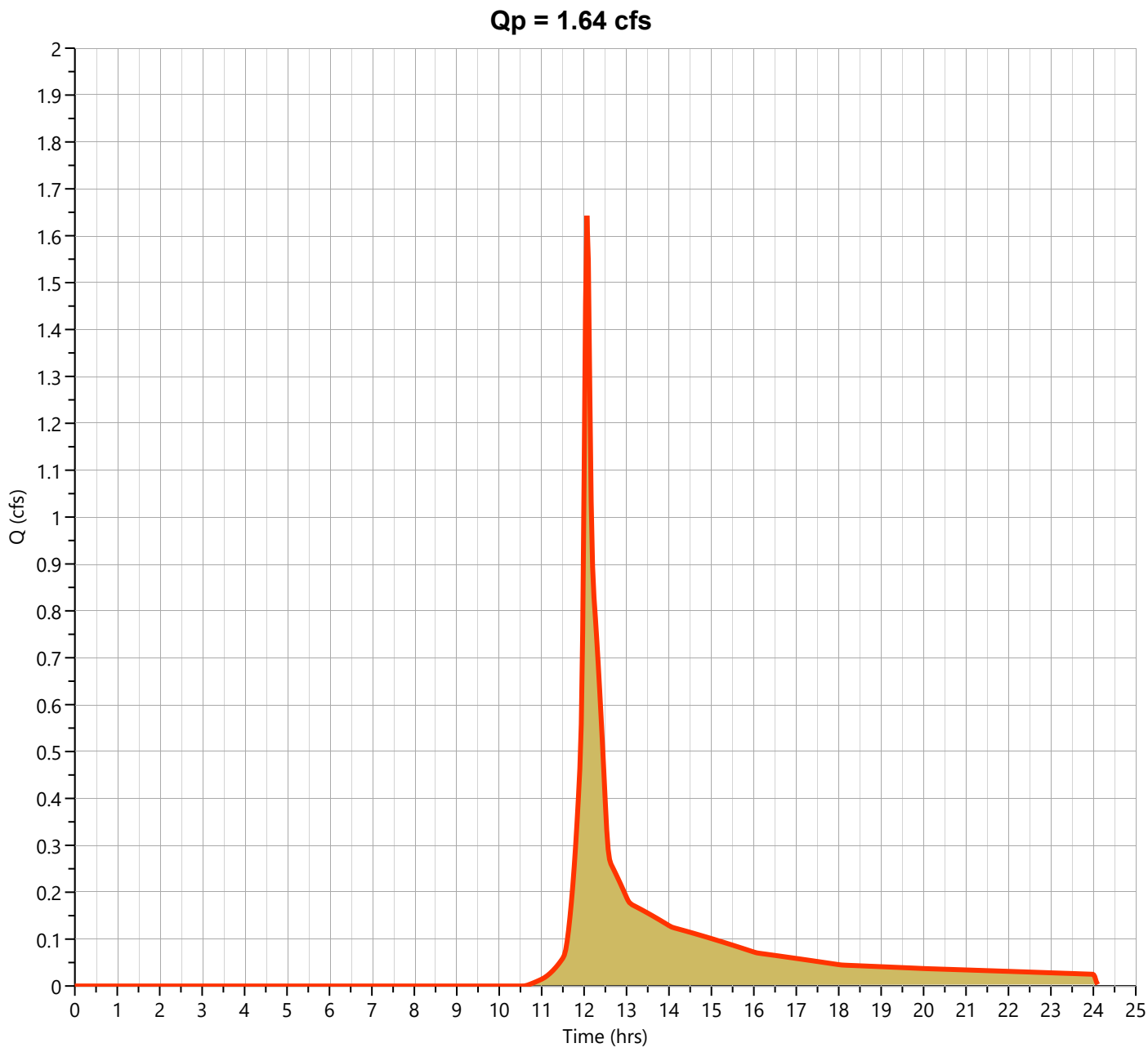
Hydrology Studio v 3.0.0.24

06-15-2022

Pre D

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.643 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 5,173 cuft
Drainage Area	= 0.604 ac	Curve Number	= 54
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 7.76 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

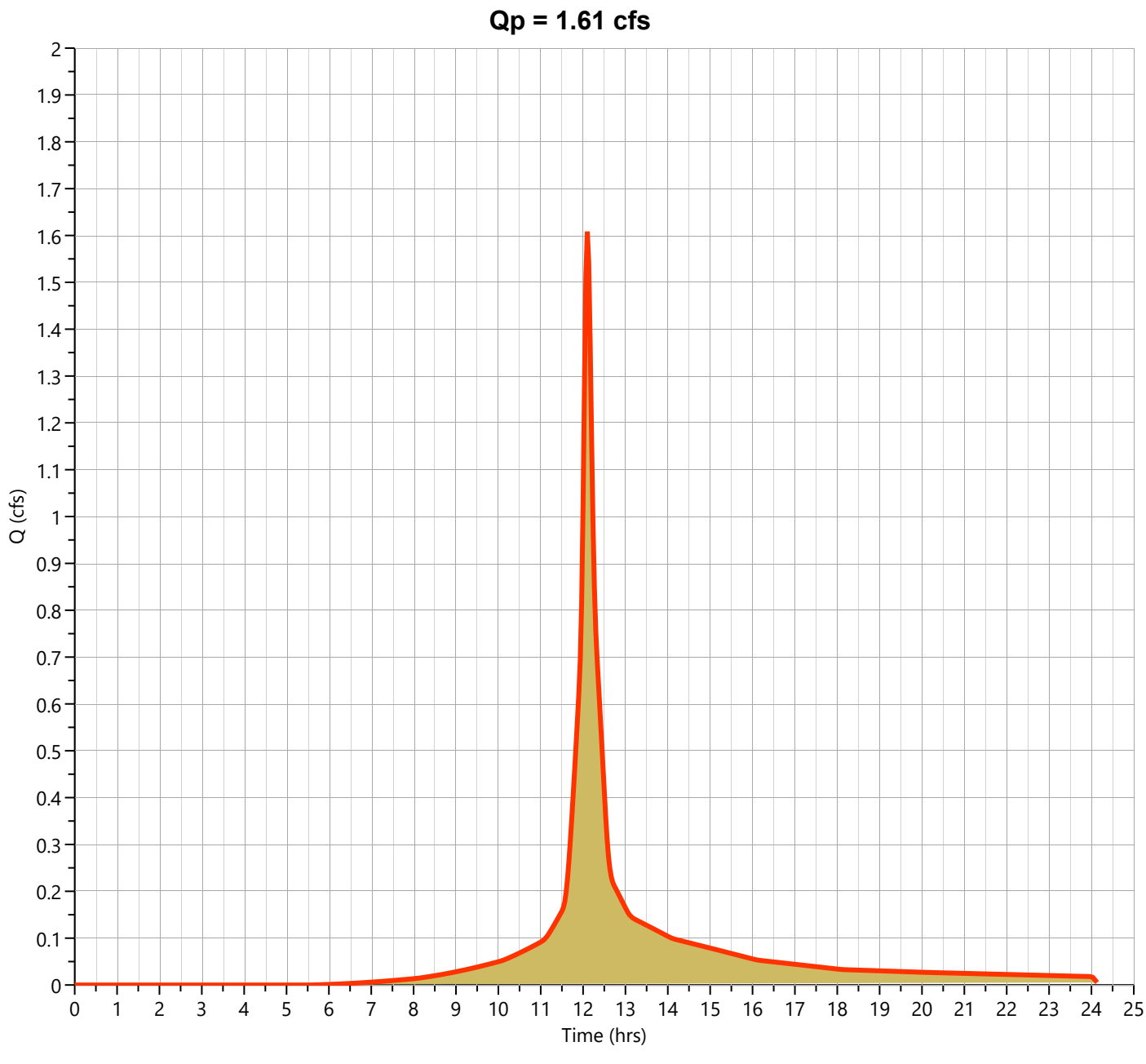
Hydrology Studio v 3.0.0.24

06-15-2022

Pre E

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.608 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 5,567 cuft
Drainage Area	= 0.284 ac	Curve Number	= 80
Tc Method	= User	Time of Conc. (Tc)	= 9.06 min
Total Rainfall	= 7.76 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

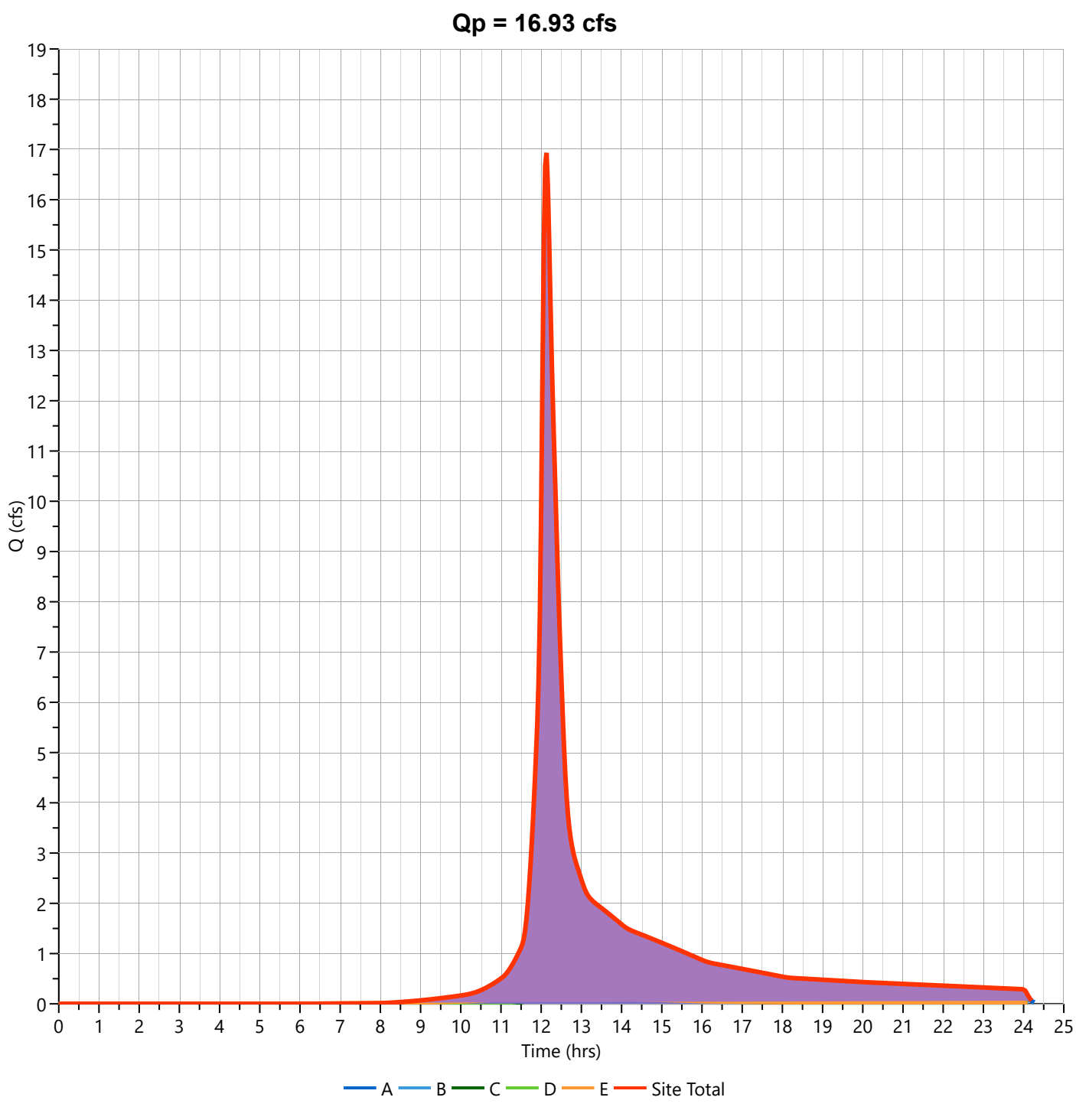
Hydrology Studio v 3.0.0.24

06-15-2022

Pre Site Total

Hyd. No. 6

Hydrograph Type	= Junction	Peak Flow	= 16.93 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 67,611 cuft
Inflow Hydrographs	= 1, 2, 3, 4, 5	Total Contrib. Area	= 5.915 ac



Hydrograph Report

Project Name:

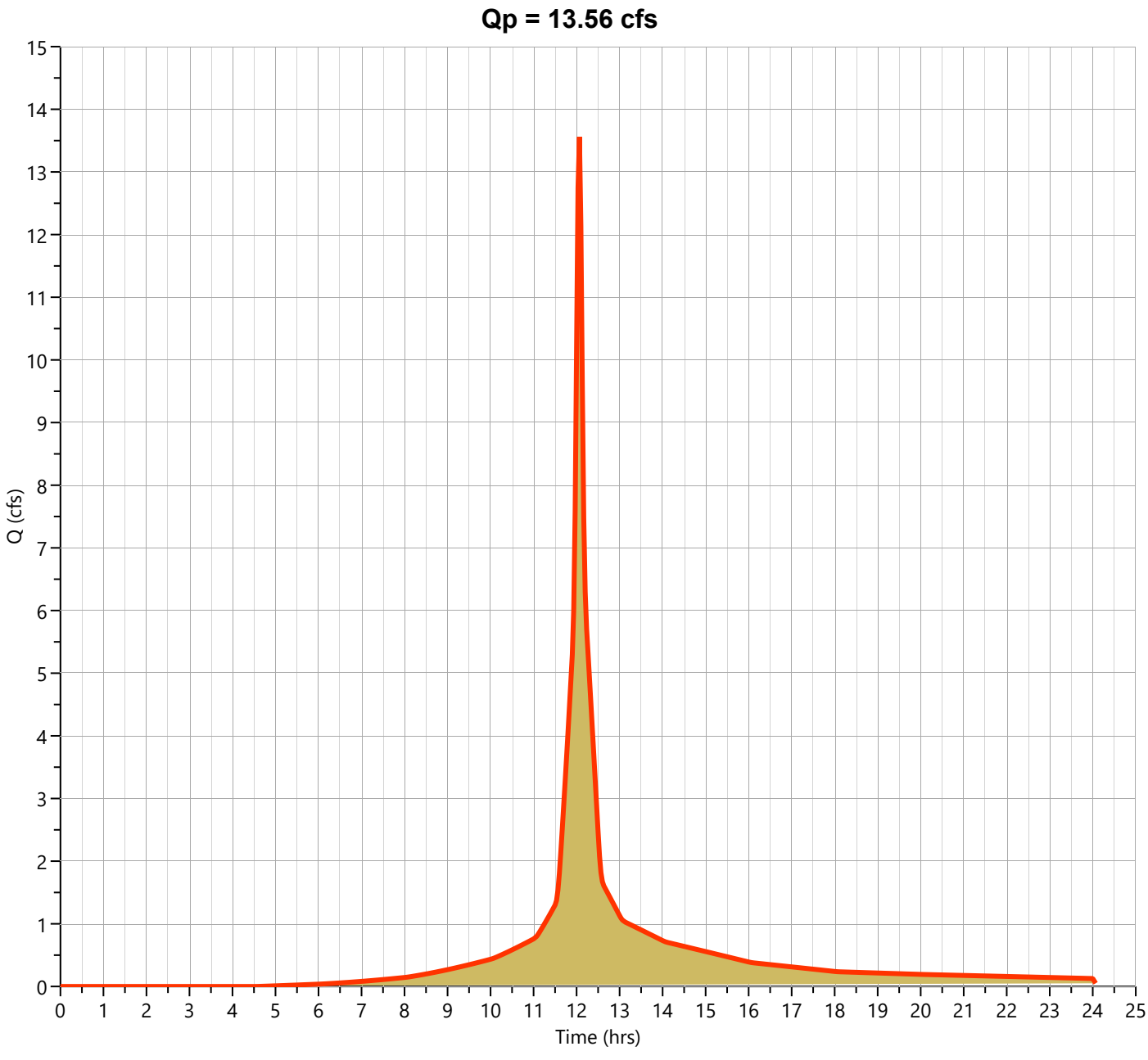
Hydrology Studio v 3.0.0.24

06-15-2022

Post Basin A

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 13.56 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 41,888 cuft
Drainage Area	= 2.107 ac	Curve Number	= 83.8
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 7.76 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-15-2022

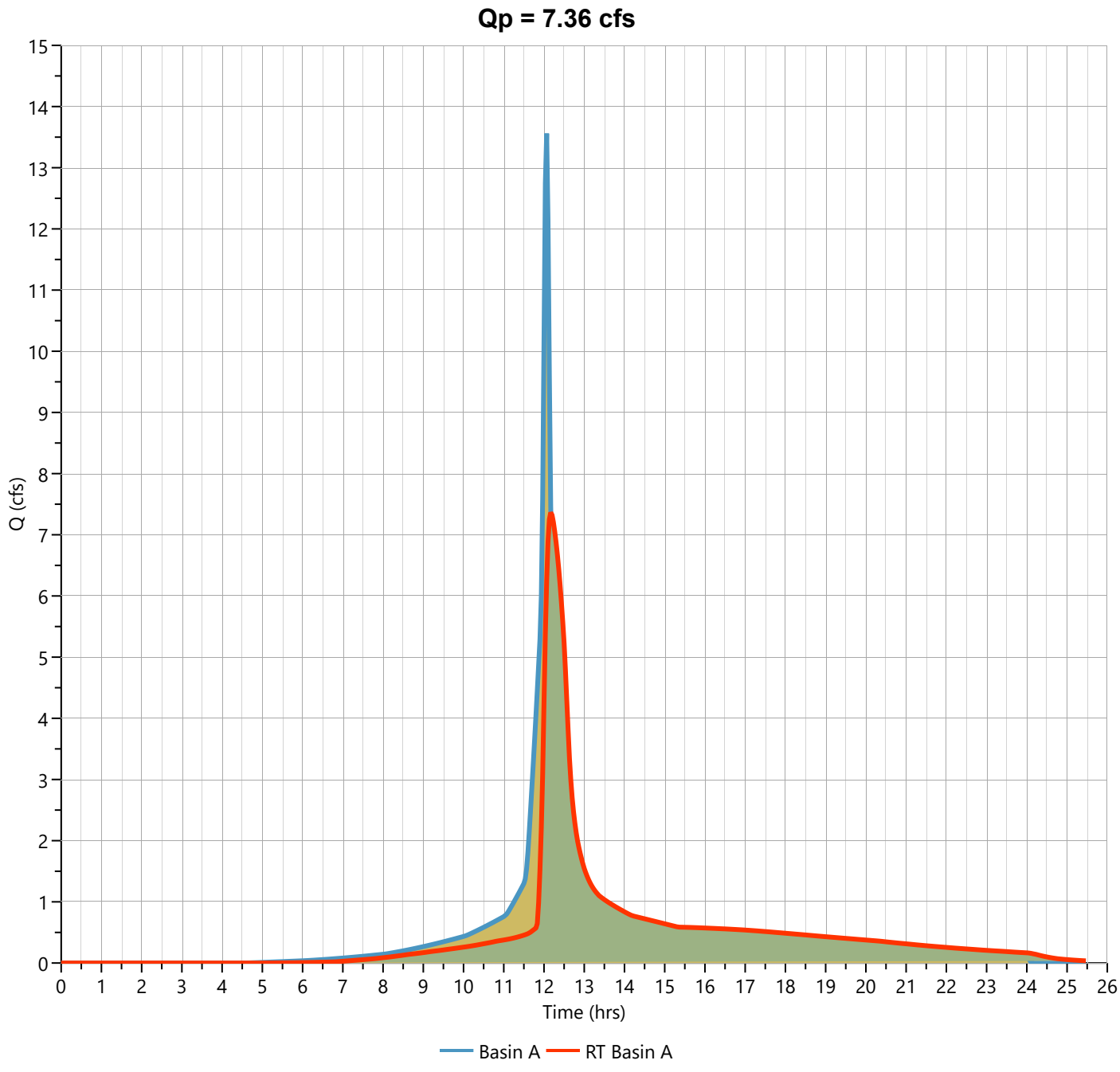
Post RT Basin A

Hyd. No. 8

Hydrograph Type	= Pond Route	Peak Flow	= 7.364 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 41,877 cuft
Inflow Hydrograph	= 7 - Basin A	Max. Elevation	= 484.76 ft
Pond Name	= Basin A	Max. Storage	= 11,276 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 1.27 hrs



Hydrograph Report

Project Name:

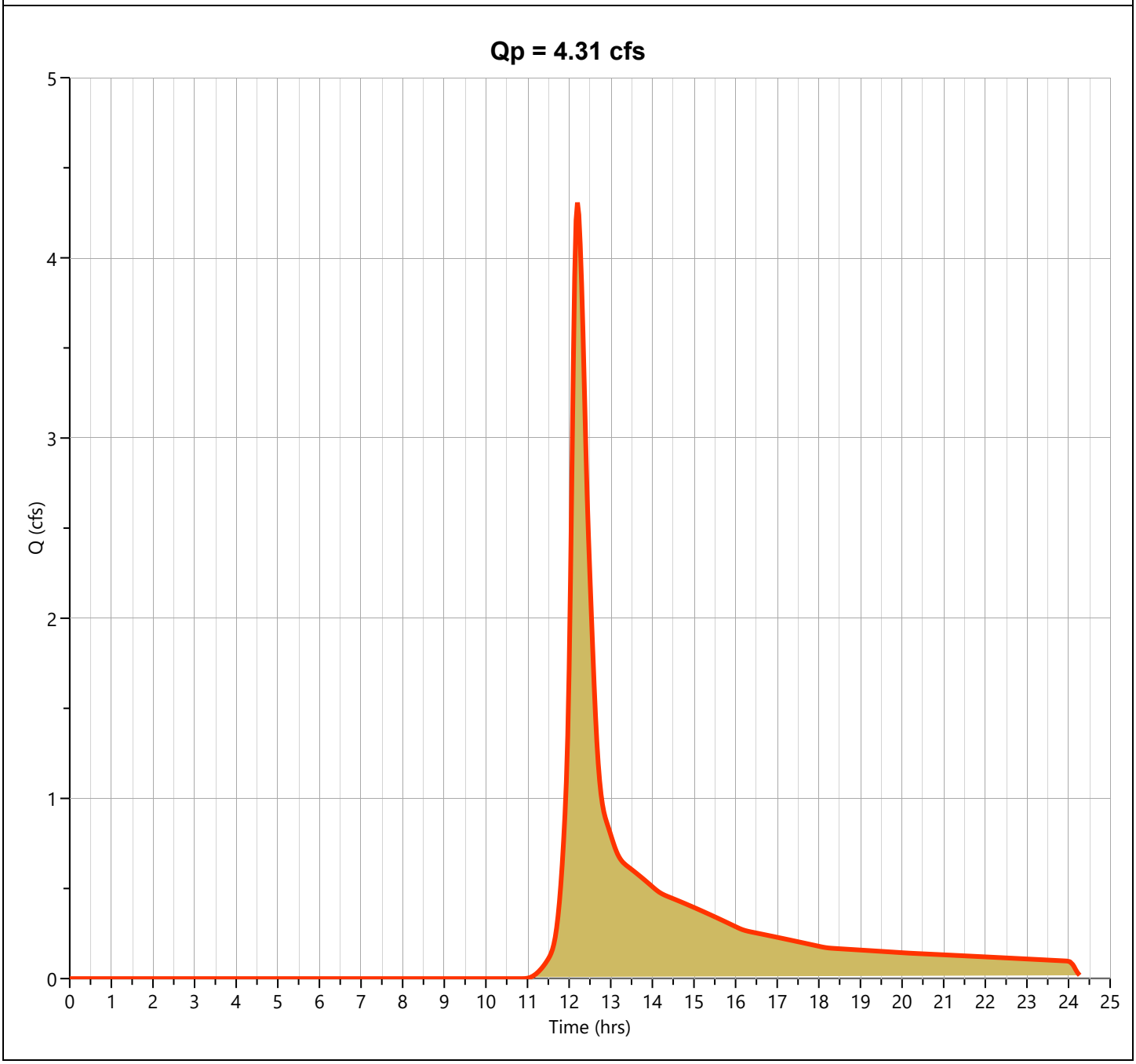
Hydrology Studio v 3.0.0.24

06-15-2022

Post A

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.307 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Runoff Volume	= 18,894 cuft
Drainage Area	= 2.343 ac	Curve Number	= 51.7
Tc Method	= User	Time of Conc. (Tc)	= 14.55 min
Total Rainfall	= 7.76 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

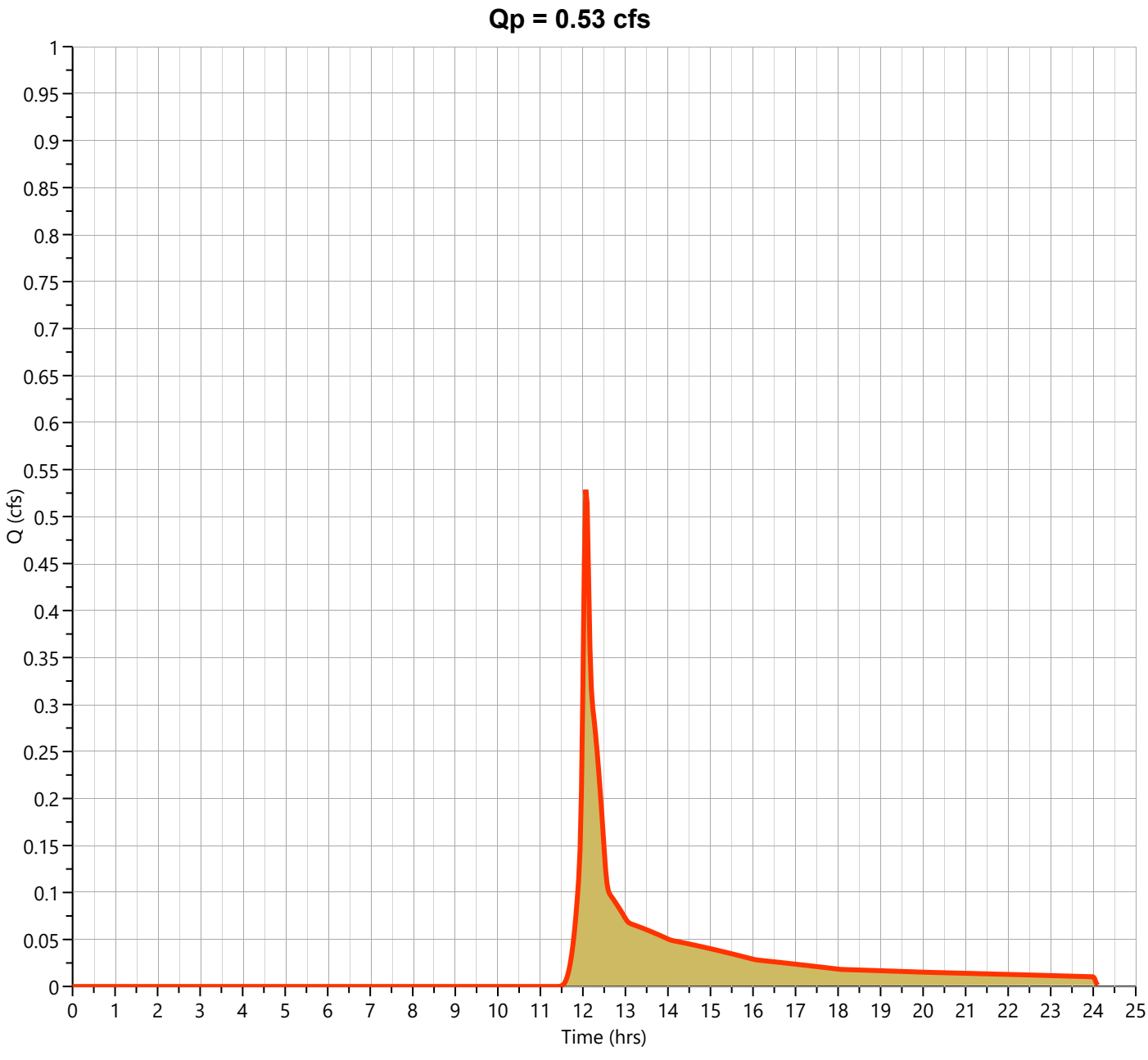
Hydrology Studio v 3.0.0.24

06-15-2022

Post B

Hyd. No. 10

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.528 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 1,837 cuft
Drainage Area	= 0.299 ac	Curve Number	= 47
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 7.76 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

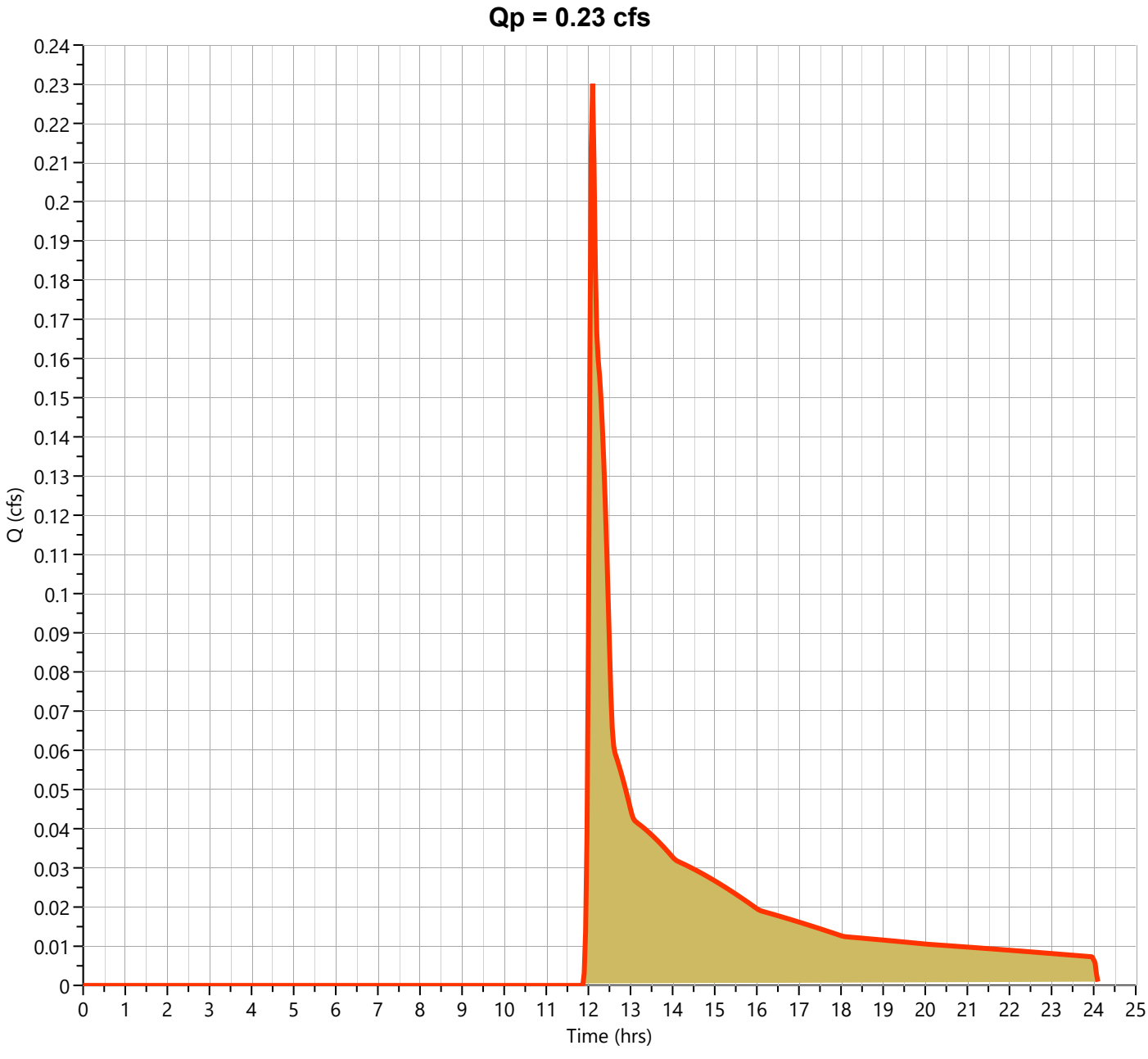
Hydrology Studio v 3.0.0.24

06-15-2022

Post C

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.230 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 1,051 cuft
Drainage Area	= 0.278 ac	Curve Number	= 39.6
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 7.76 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

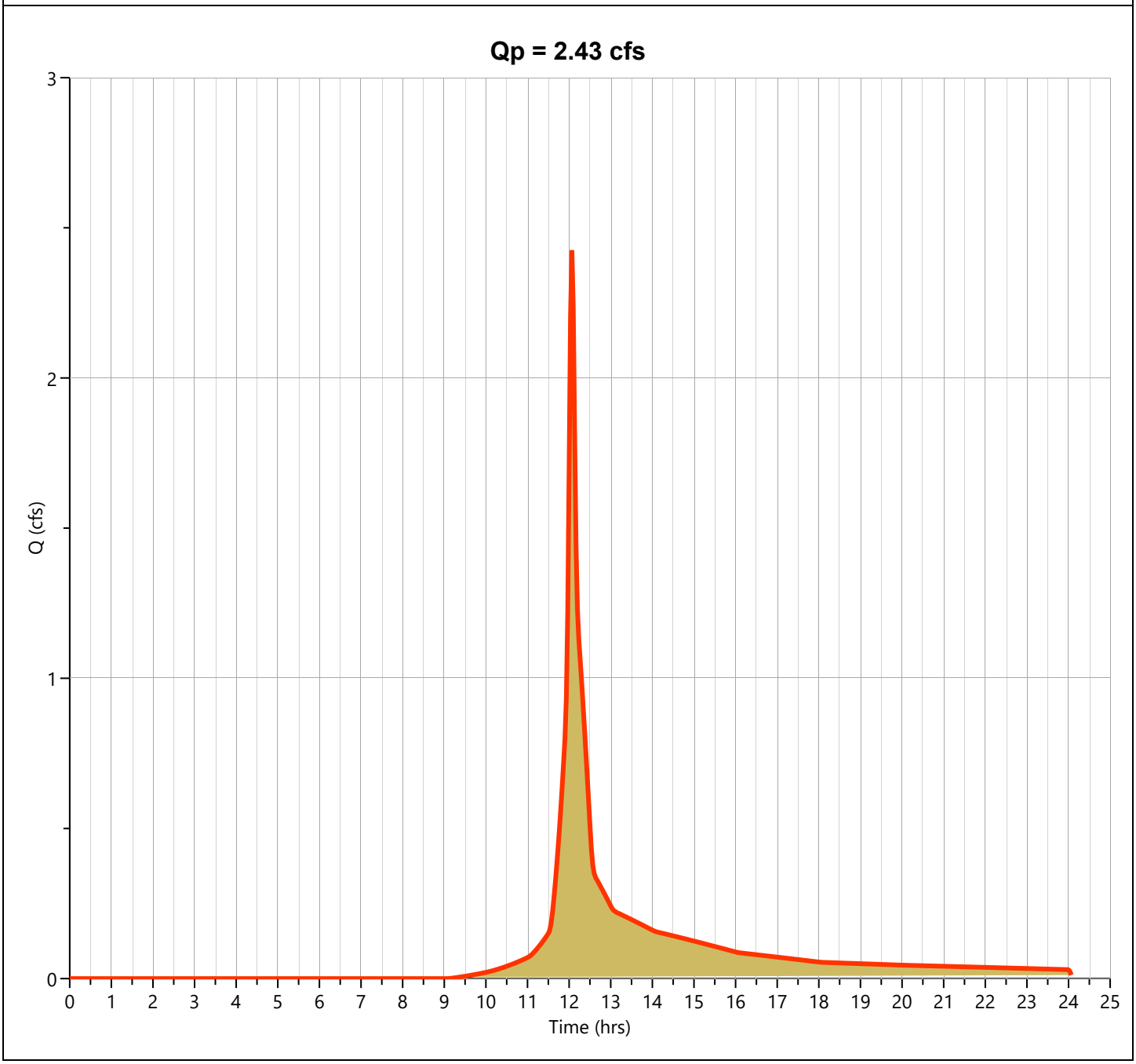
Hydrology Studio v 3.0.0.24

06-15-2022

Post D

Hyd. No. 12

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.425 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 7,290 cuft
Drainage Area	= 0.604 ac	Curve Number	= 63.6
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 7.76 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

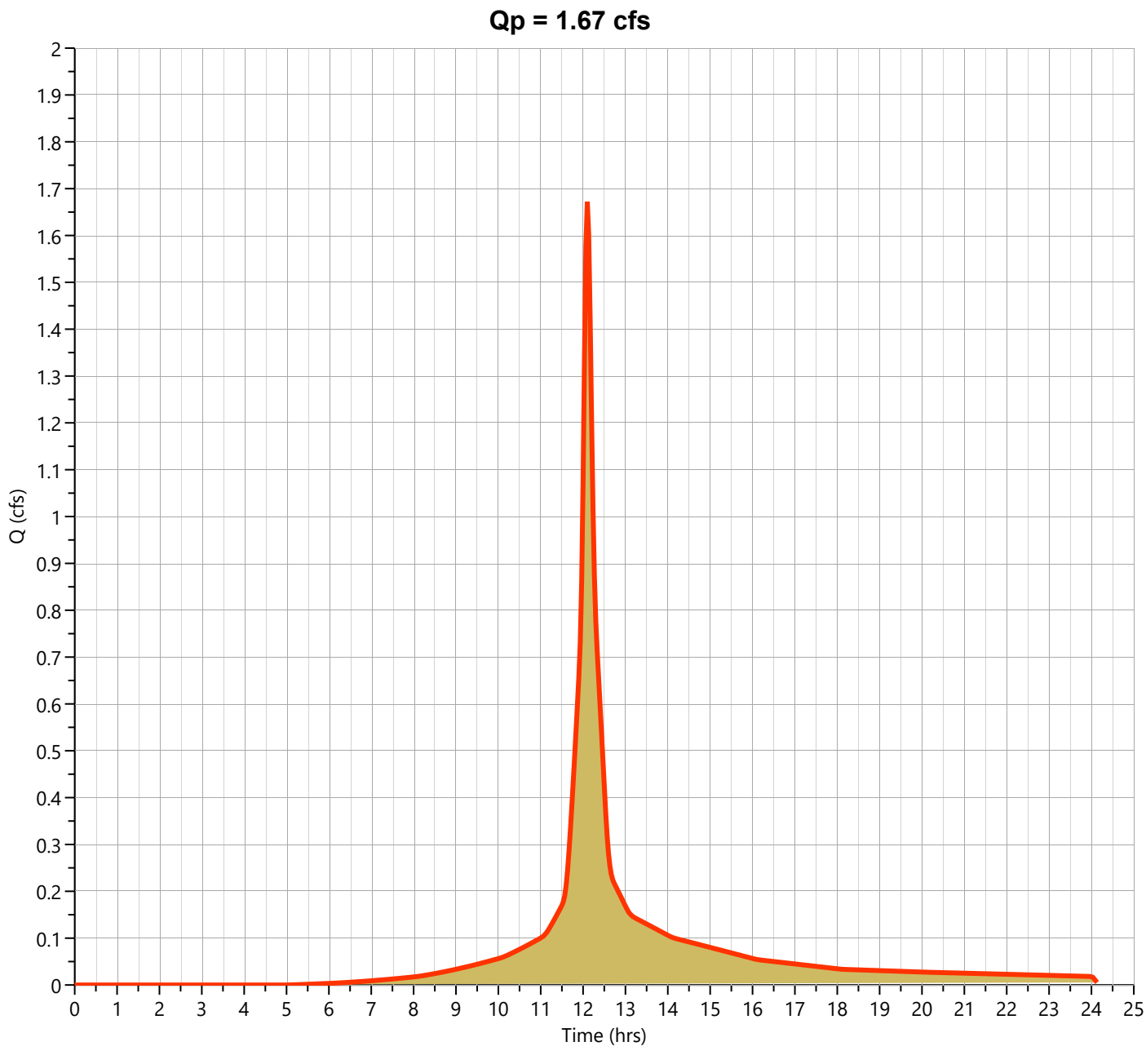
Hydrology Studio v 3.0.0.24

06-15-2022

Post E

Hyd. No. 13

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.672 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 5,830 cuft
Drainage Area	= 0.284 ac	Curve Number	= 82.2
Tc Method	= User	Time of Conc. (Tc)	= 9.06 min
Total Rainfall	= 7.76 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

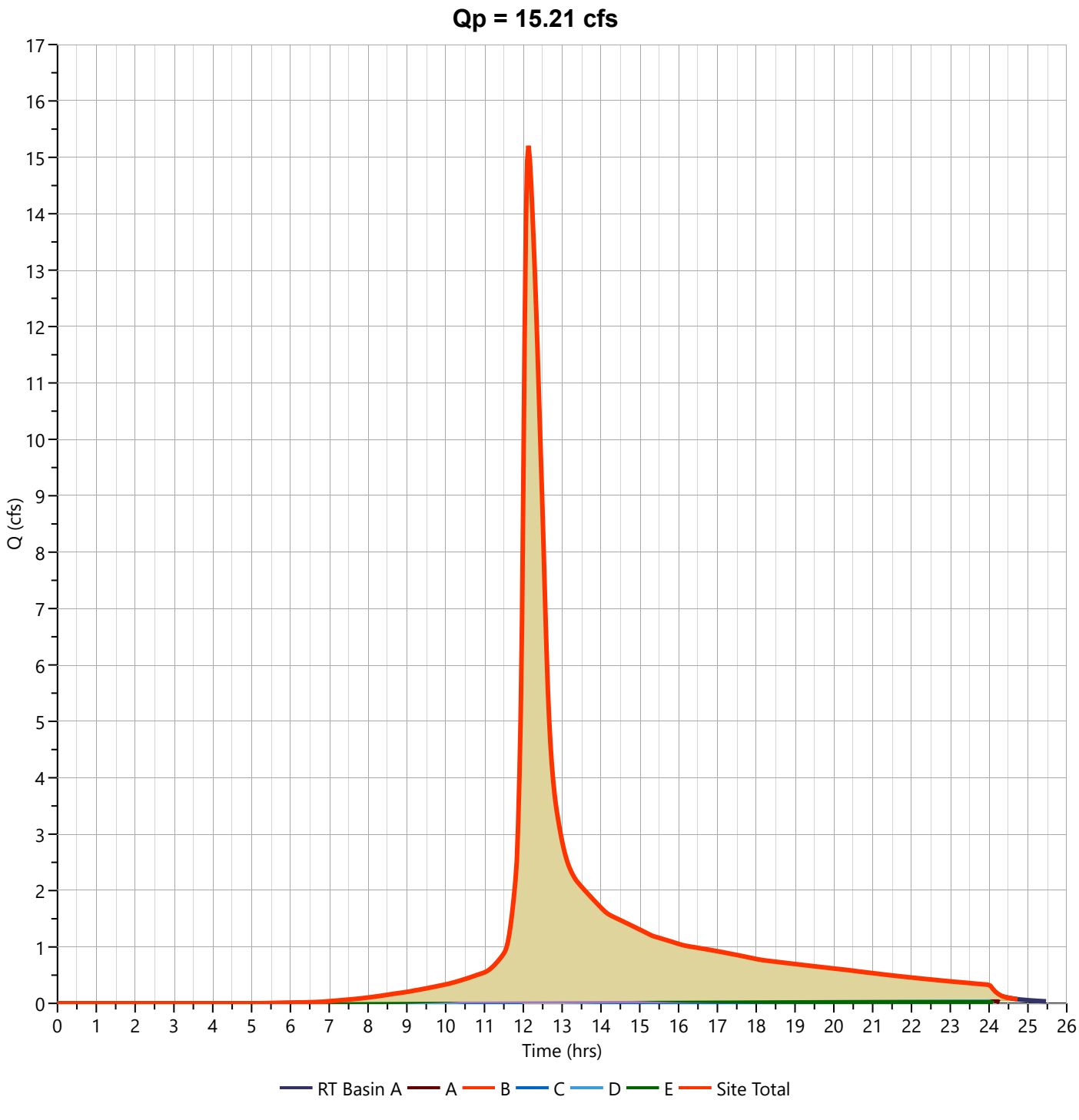
Hydrology Studio v 3.0.0.24

06-15-2022

Post Site Total

Hyd. No. 14

Hydrograph Type	= Junction	Peak Flow	= 15.21 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 76,781 cuft
Inflow Hydrographs	= 8, 9, 10, 11, 12, 13	Total Contrib. Area	= 3.808 ac



Storm Sewer Design Information

7

C-value Calculation
Inlet, Pipe, HGL Calculations

Storm Sewer Tabulation

Project Name: Enter Project Name...

Stormwater Studio 2021 v 3.0.0.28

06-15-2022

Line ID	Length	Drng Area		Rational	C x A		Tc		Intensity	Total Q	Capacity	Velocity	Line		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
	(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
102-100	58.00	0.210	0.970	0.96	0.20	0.83	5.0	6.09	7.65	6.52	10.79	5.31	15	2.00	482.16	481.00	484.63	484.21	488.50	483.50	1
104-102	168.00	0.090	0.760	0.96	0.09	0.63	5.0	5.78	7.87	5.27	11.39	7.02	15	2.23	488.74	485.00	489.66	485.62	495.00	488.50	2
106-104	100.00	0.180	0.670	0.96	0.17	0.55	5.0	5.53	8.07	4.65	7.57	5.64	15	0.98	489.92	488.94	490.79	489.68	495.00	495.00	3
108-106	98.00	0.290	0.490	0.75	0.22	0.37	5.0	5.25	8.30	3.18	7.64	3.75	15	1.00	491.10	490.12	491.82	491.09	495.00	495.00	4
110-108	70.00	0.200	0.200	0.78	0.16	0.16	5.0	5.00	8.52	1.33	7.63	2.43	15	1.00	492.00	491.30	492.46	492.09	495.00	495.00	5

Notes: IDF File = PoughkeepsieNY.idf, Return Period = 25-yrs. Total Qs limited to inlet captured flows.

Project File: 028004 Storm Sewer East.sws

Energy Grade Line Calculations

Project Name: Enter Project Name...

Stormwater Studio 2021 v 3.0.0.28

06-15-2022

Line No	Line Size	Q	Downstream							Length	Upstream							Pipe		Junction		
			Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev		Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev	n Value	Enrgy Loss	HGLa Elev	EGLa Elev	Enrgy Loss
	(in)	(cfs)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)
1	15	6.52	481.00	1.25	1.23	484.21	5.31	0.44	484.65	58.00	482.16	1.25	1.23	484.63	5.31	0.44	485.07	0.011	0.424	484.77	485.21	0.13
2	15	5.27	485.00	0.62‡	0.61	485.62	8.60	1.15	486.38	168.00	488.74	0.92²	0.97	489.66	5.45	0.46	490.12	0.011	3.740	489.66	490.12	0.00
3	15	4.65	488.94	0.74‡	0.76	489.68	6.13	0.58	490.22	100.00	489.92	0.86²	0.90	490.79	5.15	0.41	491.20	0.011	0.984	490.79	491.20	0.00
4	15	3.18	490.12	0.97	1.02	491.09	3.11	0.15	491.24	98.00	491.10	0.71²	0.72	491.82	4.39	0.30	492.12	0.011	0.873	491.82	492.12	0.00
5	15	1.33	491.30	0.79	0.81	492.09	1.63	0.04	492.13	70.00	492.00	0.46²	0.41	492.46	3.23	0.16	492.62	0.011	0.494	492.46	492.62	0.00

Notes: Return Period = 25-yrs. ² Critical depth. ‡ Supercritical.

Project File: 028004 Storm Sewer East.sws

Inlet Report

Stormwater Studio 2021 v 3.0.0.28

Project Name: Enter Project Name...

06-15-2022

Line No	Inlet		Q				Curb		Grate			Gutter							Inlet			Byp Line No
	Id	Type	Catch (cfs)	Carry (cfs)	Capt (cfs)	Byp (cfs)	Ht (in)	L (ft)	L (ft)	W (ft)	Area (sqft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	102	Combination	1.72	0.12	1.25	0.59	2.0	3.00	2.00	2.00	-	0.045	2.00	0.020	0.020	0.013	0.13	6.35	0.13	6.35	0.0	0
2	104	Combination	0.74	0.00	0.62	0.12	2.0	3.00	2.00	3.00	-	0.045	2.00	0.020	0.020	0.013	0.09	4.50	0.09	4.50	0.0	1
3	106	Combination	1.47	0.00	1.47	0.00	2.0	3.00	2.00	3.00	4.00	Sag	2.00	0.020	0.020	0.013	0.19	9.50	0.19	9.50	0.0	2
4	108	Combination	1.85	0.00	1.85	0.00	2.0	3.00	3.00	2.00	4.00	Sag	2.00	0.020	0.020	0.013	0.22	11.00	0.22	11.00	0.0	3
5	110	Drop Grate	1.33	0.00	1.33	0.00	-	-	2.00	3.00	4.00	Sag	2.00	0.050	0.020	0.013	0.13	15.51	0.13	15.51	0.0	4

Notes: Return Period = 25-yrs. All curb inlets are Horiz throat.,

Storm Sewer Tabulation

Project Name: Enter Project Name...

Stormwater Studio 2021 v 3.0.0.28

06-15-2022

Line ID	Length	Drng Area		Rational	C x A		Tc		Intensity	Total Q	Capacity	Velocity	Line		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
	(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
302-300	34.00	0.000	0.050	0.00	0.00	0.05	5.0	5.19	8.35	NaN	5.40	0.00	15	0.50	481.17	481.00	481.17	481.00	485.15	483.50	1
304-302	30.00	0.050	0.050	0.96	0.05	0.05	5.0	5.00	8.52	0.41	5.47	2.38	15	0.51	481.52	481.37	481.78	481.61	484.50	485.15	2

Notes: IDF File = PoughkeepsieNY.idf, Return Period = 25-yrs. Total Qs limited to inlet captured flows.

Project File: 028004 Storm Sewer East-short.sws

Inlet Report

Stormwater Studio 2021 v 3.0.0.28

Project Name: Enter Project Name...

06-15-2022

Line No	Inlet		Q				Curb		Grate			Gutter							Inlet			Byp Line No
	Id	Type	Catch (cfs)	Carry (cfs)	Capt (cfs)	Byp (cfs)	Ht (in)	L (ft)	L (ft)	W (ft)	Area (sqft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	302	Combination	0.00	0.00	NaN	NaN	2.0	3.00	3.00	2.00	-	5.000	2.00	0.020	0.020	0.013	0.00	0.00	0.00	0.00	0.0	0
2	304	Combination	0.41	0.00	0.41	0.00	2.0	3.00	3.00	2.00	-	4.400	2.00	0.020	0.020	0.013	0.03	1.55	0.03	1.55	0.0	1

Notes: Return Period = 25-yrs. All curb inlets are Horiz throat.,

Energy Grade Line Calculations

Project Name: Enter Project Name...

Stormwater Studio 2021 v 3.0.0.28

06-15-2022

Line No	Line Size	Q	Downstream							Length	Upstream							Pipe		Junction		
			Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev		Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev	n Value	Enrgy Loss	HGLa Elev	EGLa Elev	Enrgy Loss
	(in)	(cfs)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)
1	15	NaN	481.00	0.00	0.00	481.00	0.00	0.00	481.00	34.00	481.17	0.00	0.00	481.17	0.00	0.00	481.17	0.011	0.170	481.17	481.17	0.00
2	15	0.41	481.37	0.24‡	0.16	481.61	2.50	0.10	481.71	30.00	481.52	0.26²	0.18	481.78	2.26	0.08	481.86	0.011	0.154	481.78	481.86	0.00

Notes: Return Period = 25-yrs. ¹ Critical depth. ² Critical depth. ‡ Supercritical.

Project File: 028004 Storm Sewer East-short.sws

Storm Sewer Tabulation

Project Name: Enter Project Name...

Stormwater Studio 2021 v 3.0.0.28

06-15-2022

Line ID	Length	Drng Area		Rational	C x A		Tc		Intensity	Total Q	Capacity	Velocity	Line		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
	(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
202-200	35.00	0.004	0.714	0.96	0.00	0.65	5.0	6.41	7.44	5.51	10.79	6.46	15	2.00	481.70	481.00	482.64	481.73	489.30	483.50	1
204-202	32.00	0.090	0.710	0.96	0.09	0.64	5.0	6.35	7.48	5.48	10.79	6.42	15	2.00	487.05	486.41	487.99	487.15	490.10	489.30	2
206-204	68.00	0.080	0.620	0.96	0.08	0.56	5.0	6.23	7.55	4.74	13.00	6.84	15	2.90	489.22	487.25	490.09	487.83	493.50	490.10	3
208-206	60.00	0.090	0.540	0.96	0.09	0.48	5.0	6.03	7.69	4.09	5.40	4.86	15	0.50	489.72	489.42	490.53	490.23	495.00	493.50	4
210-208	98.00	0.180	0.450	0.96	0.17	0.39	5.0	5.67	7.95	3.35	5.39	4.51	15	0.50	490.41	489.92	491.14	490.64	495.00	495.00	5
212-210	99.00	0.100	0.270	0.86	0.09	0.22	5.0	5.26	8.29	1.88	5.38	2.55	15	0.50	491.10	490.61	491.68	491.63	495.00	495.00	6
214-212	70.00	0.170	0.170	0.79	0.13	0.13	5.0	5.00	8.52	1.14	7.63	2.58	15	1.00	492.00	491.30	492.43	491.88	495.00	495.00	7

Notes: IDF File = PoughkeepsieNY.idf, Return Period = 25-yrs. Total Qs limited to inlet captured flows.

Energy Grade Line Calculations

Project Name: Enter Project Name...

Stormwater Studio 2021 v 3.0.0.28

06-15-2022

Line No	Line Size	Q	Downstream							Length	Upstream							Pipe		Junction		
			Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev		Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev	n Value	Enrgy Loss	HGLa Elev	EGLa Elev	Enrgy Loss
	(in)	(cfs)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)
1	15	5.51	481.00	0.73‡	0.75	481.73	7.36	0.84	482.42	35.00	481.70	0.94²	0.99	482.64	5.57	0.48	483.12	0.011	0.700	482.64	483.12	0.00
2	15	5.48	486.41	0.74‡	0.75	487.15	7.28	0.82	487.83	32.00	487.05	0.94²	0.99	487.99	5.55	0.48	488.47	0.011	0.640	487.99	488.47	0.00
3	15	4.74	487.25	0.58‡	0.56	487.83	8.49	1.12	488.54	68.00	489.22	0.87²	0.91	490.09	5.19	0.42	490.51	0.011	1.966	490.09	490.51	0.00
4	15	4.09	489.42	0.81‡	0.84	490.23	4.88	0.37	490.60	60.00	489.72	0.81	0.84	490.53	4.84	0.36	490.90	0.011	0.300	490.72	491.09	0.19
5	15	3.35	489.92	0.72‡	0.73	490.64	4.57	0.32	491.13	98.00	490.41	0.74	0.75	491.14	4.46	0.31	491.45	0.011	0.318	491.35	491.66	0.20
6	15	1.88	490.61	1.02	1.07	491.63	1.76	0.05	491.67	99.00	491.10	0.58	0.56	491.68	3.35	0.17	491.86	0.011	0.184	491.75	491.93	0.07
7	15	1.14	491.30	0.58	0.55	491.88	2.07	0.07	491.94	70.00	492.00	0.43²	0.37	492.43	3.08	0.15	492.58	0.011	0.633	492.43	492.58	0.00

Notes: Return Period = 25-yrs. ² Critical depth. ‡ Supercritical.

Project File: 028004 Storm Sewer West.sws

Inlet Report

Project Name: Enter Project Name...

Stormwater Studio 2021 v 3.0.0.28

06-15-2022

Line No	Inlet		Q				Curb		Grate			Gutter							Inlet			Byp Line No
	Id	Type	Catch (cfs)	Carry (cfs)	Capt (cfs)	Byp (cfs)	Ht (in)	L (ft)	L (ft)	W (ft)	Area (sqft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	202	Combination	0.03	0.00	0.03	0.00	2.0	3.00	3.00	2.00	-	4.500	2.00	0.020	0.020	0.013	0.01	0.60	0.01	0.60	0.0	0
2	204	Combination	0.74	0.00	0.74	0.00	2.0	3.00	3.00	2.00	-	4.500	2.00	0.020	0.020	0.013	0.04	1.90	0.04	1.90	0.0	1
3	206	Combination	0.65	0.00	0.65	0.00	2.0	3.00	3.00	2.00	-	4.000	2.00	0.020	0.020	0.013	0.04	1.90	0.04	1.90	0.0	2
4	208	Combination	0.74	0.00	0.74	0.00	2.0	3.00	3.00	2.00	-	3.500	2.00	0.020	0.020	0.013	0.04	2.00	0.04	2.00	0.0	3
5	210	Combination	1.47	0.00	1.47	0.00	2.0	3.00	3.00	2.00	4.00	Sag	2.00	0.020	0.020	0.013	0.20	10.00	0.20	10.00	0.0	4
6	212	Combination	0.73	0.00	0.73	0.00	2.0	3.00	3.00	2.00	4.00	Sag	2.00	0.020	0.020	0.013	0.13	6.50	0.13	6.50	0.0	5
7	214	Drop Grate	1.14	0.00	1.14	0.00	-	-	3.00	2.00	4.00	Sag	2.00	0.050	0.020	0.013	0.11	13.32	0.11	13.32	0.0	6

Notes: Return Period = 25-yrs. All curb inlets are Horiz throat.,

Project File: 028004 Storm Sewer West.sws

Moffat Properties - Newburgh NY (028-004)

Town of Newburgh

Orange County, New York

By: JWJ

Date: 06/15/22

Rev'd:

Inlet No.	Road	Inlet Drainage Area 'C' Value												overland travel time to inlet (min.)
		Imp. (ac.)	'C'	Gravel (ac.)	'C'	Lawn (ac.)	'C'	Wood (ac.)	'C'	Meadow (ac.)	'C'	Total Area (ac.)	Overall 'C'	
100 Run														
102	Site	0.21	0.96		0.70		0.45		0.21		0.25	0.21	0.96	5.00
104	Site	0.09	0.96		0.70		0.45		0.21		0.25	0.09	0.96	5.00
106	Site	0.18	0.96		0.70		0.45		0.21		0.25	0.18	0.96	5.00
108	Site	0.06	0.96	0.23	0.70		0.45		0.21		0.25	0.29	0.75	5.00
110	Site	0.06	0.96	0.14	0.70		0.45		0.21		0.25	0.20	0.78	5.00
200 Run														
202	Site	0.004	0.96		0.70		0.45		0.21		0.25	0.004	0.96	5.00
204	Site	0.09	0.96		0.70		0.45		0.21		0.25	0.09	0.96	5.00
206	Site	0.08	0.96		0.70		0.45		0.21		0.25	0.08	0.96	5.00
208	Site	0.09	0.96		0.70		0.45		0.21		0.25	0.09	0.96	5.00
210	Site	0.18	0.96		0.70		0.45		0.21		0.25	0.18	0.96	5.00
212	Site	0.06	0.96	0.04	0.70		0.45		0.21		0.25	0.10	0.86	5.00
214	Site	0.06	0.96	0.11	0.70		0.45		0.21		0.25	0.17	0.79	5.00
300 Run														
304	Site	0.05	0.96		0.70		0.45		0.21		0.25	0.05	0.96	5.00

Hydrology Calculations

8

Pond Report
Emergency Spillway Calculations

Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-15-2022

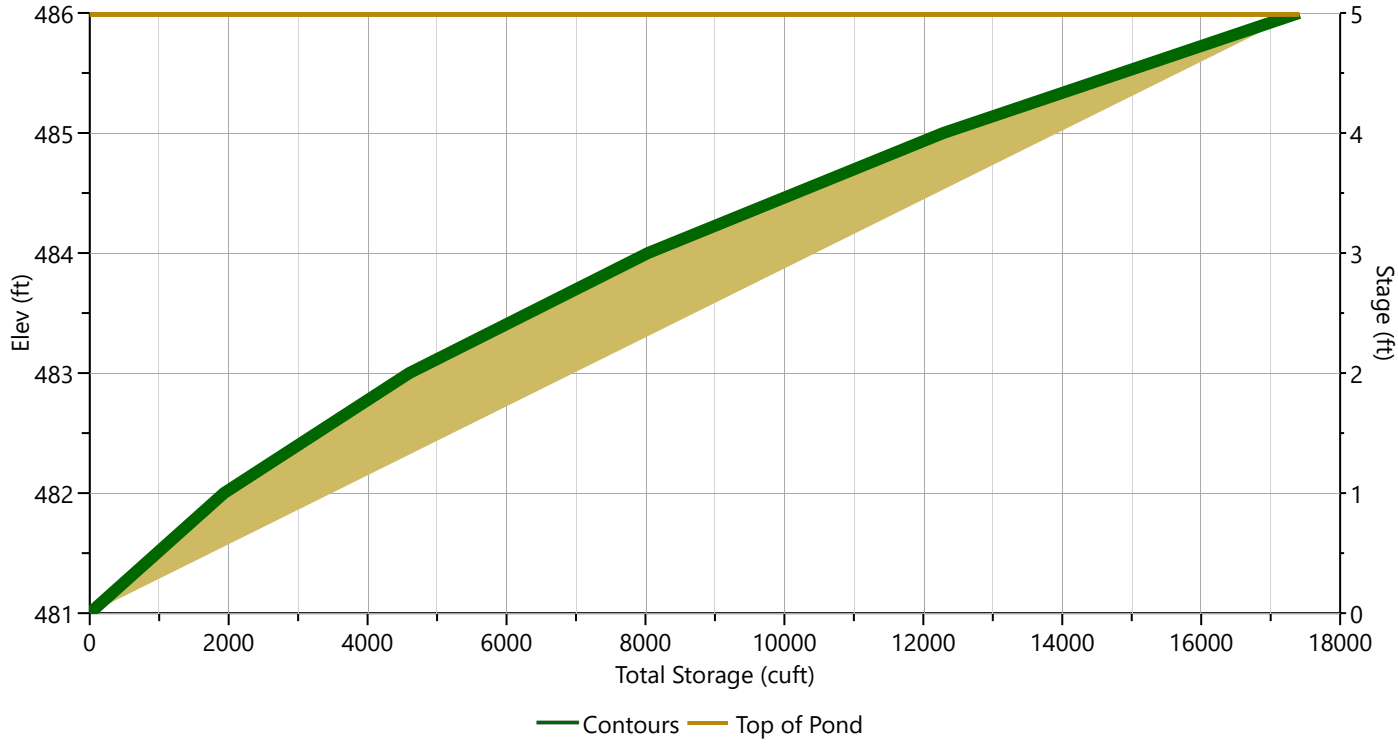
Basin A

Stage-Storage

User Defined Contours	
Description	**Input**
Bottom Elevation, ft	481.00
Voids (%)	98.00
Volume Calc	Conic

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	481.00	1,616	0.000	0.000
1.00	482.00	2,351	1,932	1,932
2.00	483.00	3,111	2,667	4,600
3.00	484.00	3,917	3,436	8,036
4.00	485.00	4,776	4,252	12,288
5.00	486.00	5,692	5,122	17,410



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-15-2022

Basin A

Stage-Discharge

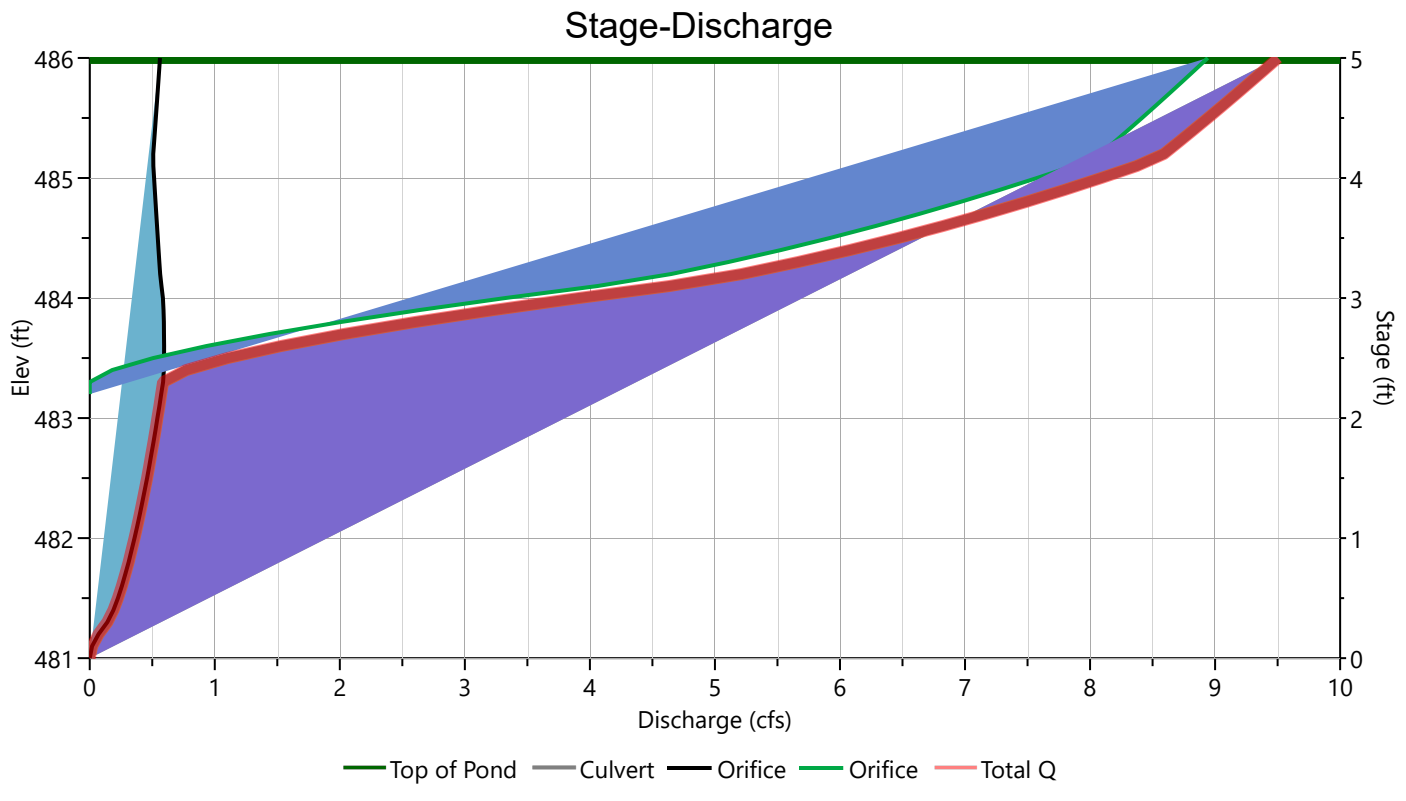
Culvert / Orifices	Culvert	Orifices		
		1*	2*	3
Rise, in	15	4	10	
Span, in	15	4	20	
No. Barrels	1	1	1	
Invert Elevation, ft	481.00	481.01	483.30	
Orifice Coefficient, Co	0.60	0.60	0.60	
Length, ft	70			
Barrel Slope, %	1.6			
N-Value, n	0.011			

Perforated Riser	
Hole Diameter, in	
No. holes	
Invert Elevation, ft	
Height, ft	
Orifice Coefficient, Co	

Weirs	Riser*	Weirs		
		1	2	3
Shape / Type				
Crest Elevation, ft				
Crest Length, ft				
Angle, deg				
Weir Coefficient, Cw				

Ancillary	
Exfiltration, in/hr	

**Routes through Culvert.*



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-15-2022

Basin A

Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	481.00	0.000	0.000	0.000	0.000									0.000
1.00	482.00	1,932	0.358 ic	0.358	0.000									0.358
2.00	483.00	4,600	0.541 ic	0.541	0.000									0.541
3.00	484.00	8,036	3.909 ic	0.585	3.323									3.909
4.00	485.00	12,288	8.090 ic	0.515	7.576									8.090
5.00	486.00	17,410	9.503 ic	0.562	8.941									9.503

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir

Pond Report

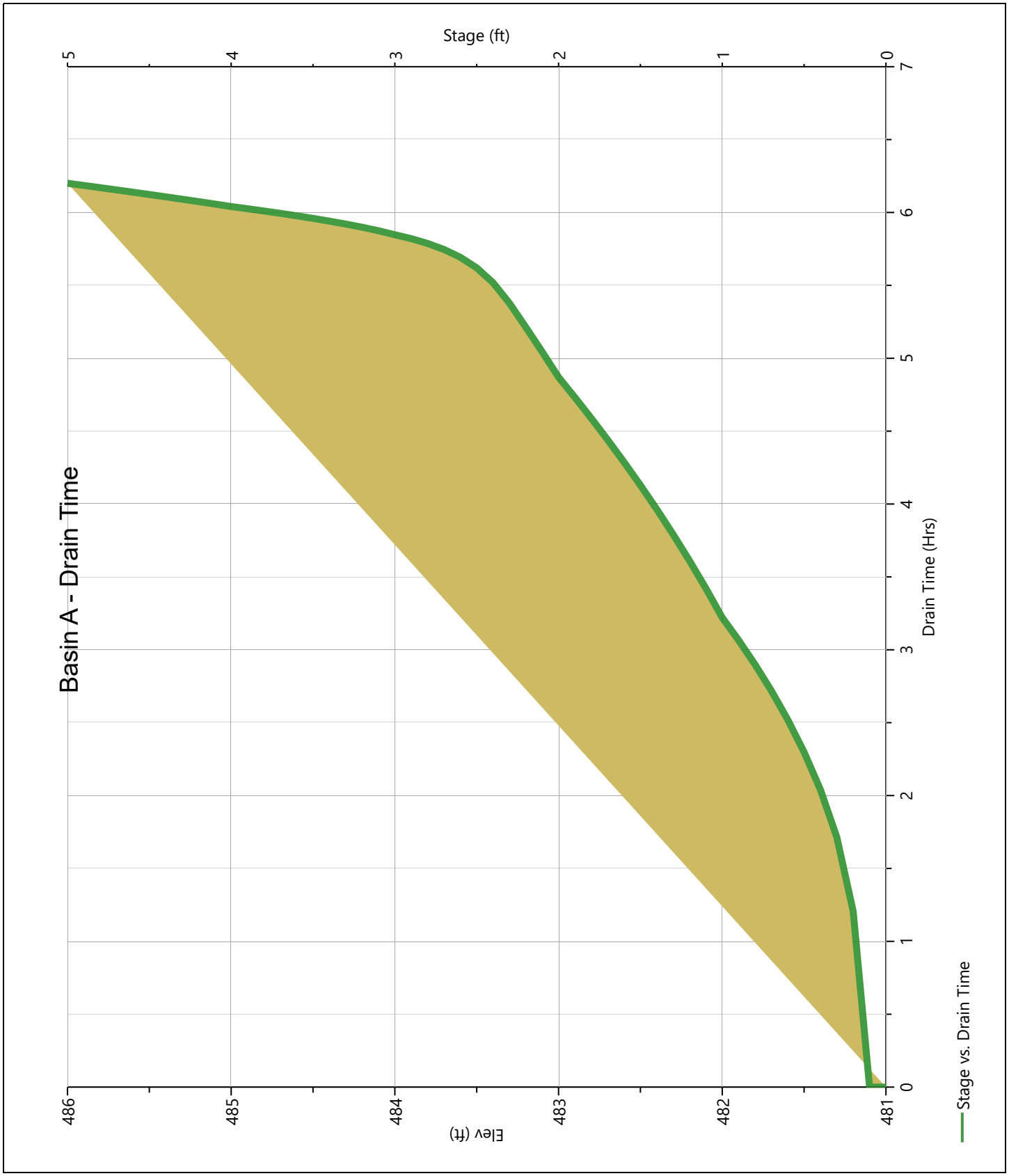
Project Name:

Hydrology Studio v 3.0.0.24

06-15-2022

Basin A

Pond Drawdown

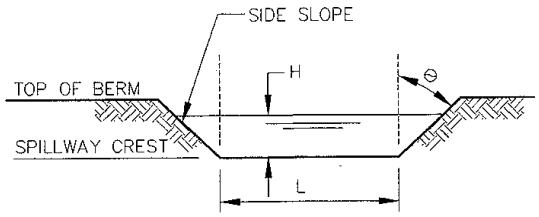


Moffat Properties - Newburgh NY (028-004)
Town of Newburgh
Orange County, New York

By: JWJ
Date: 6/15/2022
Chk'd: X.X.X.
Rev'd 00/00/00

EMERGENCY SPILLWAY CALCULATION

Formula:
$Q = 2.7\ LH^{3/2}$



Basin Identification: Basin A

Water Surface Elevation (Ft.)	Discharge Q (CFS)
485.50	0.0
485.60	1.3
485.70	3.6
485.80	6.7
485.90	10.2
486.00	14.3

Q_{100} to the Basin: 13.56
Top of Berm Elevation: 486.00
Spillway Crest Elevation: 485.50
Spillway Bottom Width (L): 15.0
Spillway Side Slope Run: 10.00
Spillway Side Slope Rise: 1.00
Side Angle (q): 84.29

100 Year WSE:	**485.98**
Freeboard to Top of Berm (Ft.):	**0.02**